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THE YOUTH'S
EDUCATIONAL
& CABINET.



THE
**YOUTH'S EDUCATIONAL
Cabinet**

A WORK DESIGNED FOR THE HOME EDUCATION AND AMUSEMENT
OF CHILDREN.

— BY —

✓
D. K. THOMAS, Ph. B., Ped. B.



48926-aa

NORMAL PARK, CHICAGO, ILL.
1895.

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How to Use the Cabinet.

1. The purpose of this work is to afford amusement for children at home, and at the same time to educate them. The work of getting an education is a prodigious undertaking which confronts every child of this generation. No one can hope to rise high without culture. Every means that will tend to facilitate this work and make it attractive and pleasant, should be obtained. More than twelve years of experience and observation as principal and superintendent of schools, have convinced the author that the progress and thoroughness of those children who have educational means at home, far exceed those who have none, and that at least two years of school life may be saved by the proper use of a blackboard at home. Class work at school is thus made more accurate, more logical in arrangement, more rapid and more artistic.

2. This work is not intended to be a complete course in any subject, but will be found helpful and suggestive. The complete treatment of the subjects would require all the large text-books used in the public school course. This work cannot take the place of any of the text-books, but will be found very helpful in using them to the best advantage.

3. The value of the blackboard for home use, cannot be overestimated. "The best school is founded on chalk." Upon the blackboard can be placed clear outlines and expositions of all lessons, while at the same time the child relieves and exercises the body by giving it a change from the desk or table, where it has been cramped over books and papers.

4. As far as possible, children should work together or with the parent or governess. Solitary study in any branch, at any age, is not so valuable as associated work. Co-operative labor always produces the best and greatest results. The mutual assistance and the competition for excellence, impress facts and principles upon the mind in indelible forms. "No idea is clearly conceived until it is expressed in words," is a well established pedagogical maxim. Mutual assistance in questions, statements and criticisms is of the highest value.

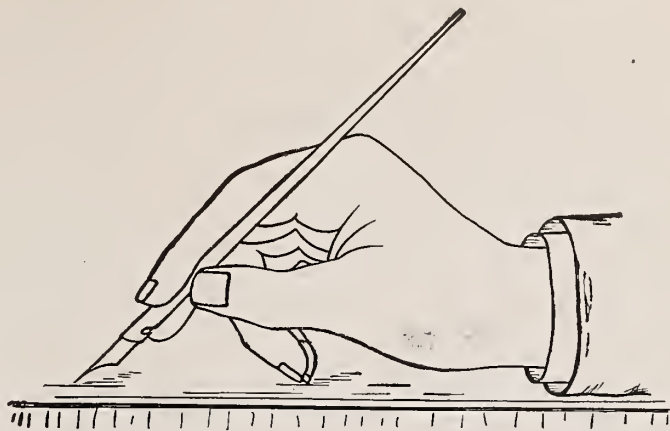
5. The instructions given on these pages are intended for the older children, the parent or the instructor. While the language is plain and simple, it is not baby talk; but throughout, things have been called by their right names. It is a mistaken idea of some teachers that small children cannot understand things by their right names. The facility with which children learn the names of things is truly wonderful. They often know hundreds of names before they can articulate them. Teach the right name at the start.

6. It is a principle in pedagogy that the child learns only when learning is made pleasurable. Hence, the pages of this book have been designed with the aim of amusing children kept steadily in view; and the illustrations have all been designed and engraved expressly for this work, making a somewhat systematic and complete course in freehand drawing for both paper and blackboard. The pictures throughout the Language Lessons are intended for pencil and pen, and are just such as artists are making to-day for all illustrated papers and periodicals throughout the world. They were all made with the pen and then photo-engraved. Every stroke of the pen appears on them exactly as it was made on the original drawing, except that it is of smaller size. Many of these artists command high salaries.

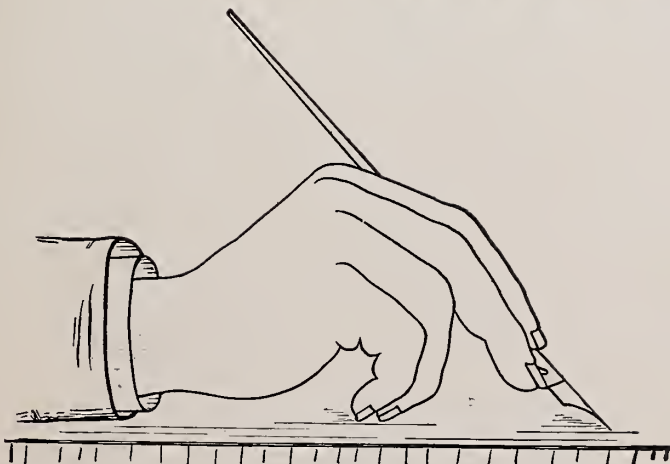
7. The penmanship is designed to be suggestive only, and gives the correct forms of all the letters. No man writes exactly the hand that was taught him when a child in school. The writing is photo-engraved from original work done by Prof. I. W. Pierson, of Bryant & Stratton's Business College, Chicago.

8. When children are to be entertained at home while the mother or the governess attends to other duties, they may be started on some amusing blackboard work and then they will need no care for hours at a time, while all their play-work will be educational.

9. Playing school and playing store are most valuable amusements for children. In playing school the blackboard secures the highest interest, and is large enough for two children to write columns of figures or to draw maps at the same time.



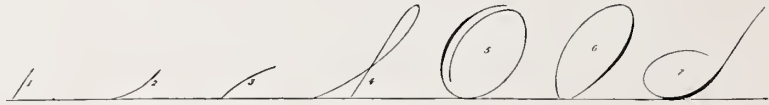
PENMANSHIP





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Writing is one of the greatest of the arts. Its value in the progress of civilization cannot be estimated. Without it the commerce and business of the world would come to an indefinite halt, and literature would suffer a relapse as dismal as the Dark Ages. Besides its importance to commerce and literature, it exerts a great influence upon the civilization of our race by cultivating our æsthetic nature. Who ever heard of a great penman, a great artist, or a great musician being convicted of a crime? Penmanship is one of the Fine Arts.



PRINCIPLES.—1, straight line; 2, right curve; 3, left curve; 4, extended loop; 5, the oval; 6, inverted oval; 7, the capital stem.

1 2 3 4 5 6 7 8 9 0

v w w n m v n &

o e e a r s

t d p q

l b h k y y g z f

The small letters are divided into Short Letters, Stem Letters, and Loop Letters.

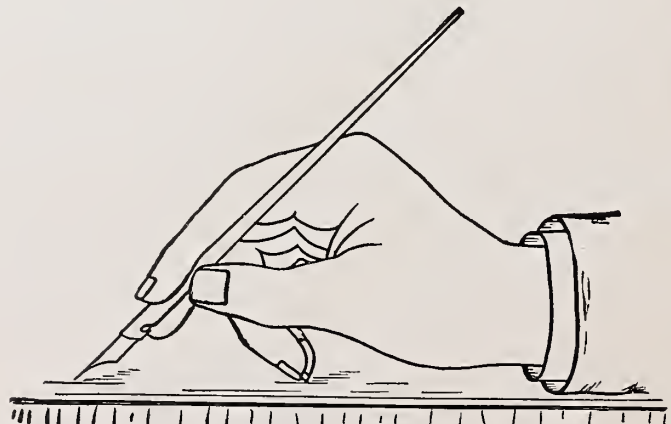
Short Letters

Stem Letters

Loop Letters

Short Letters

Stem Letters



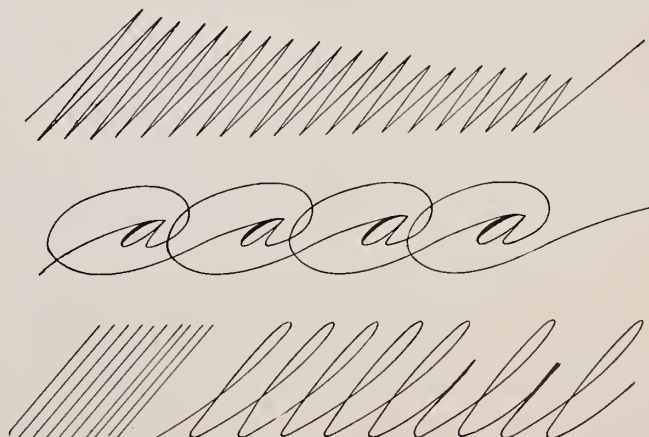
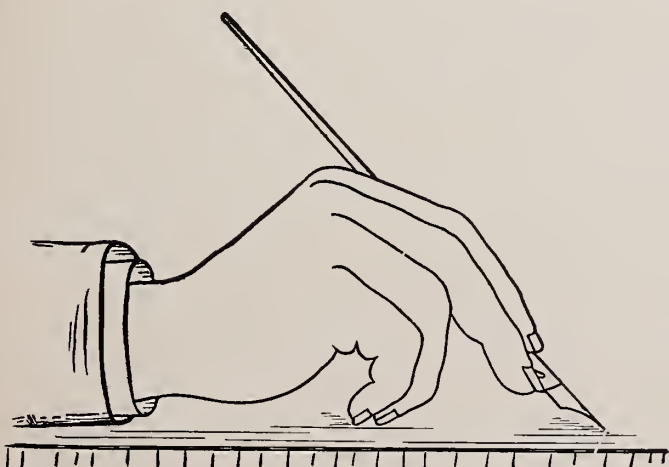
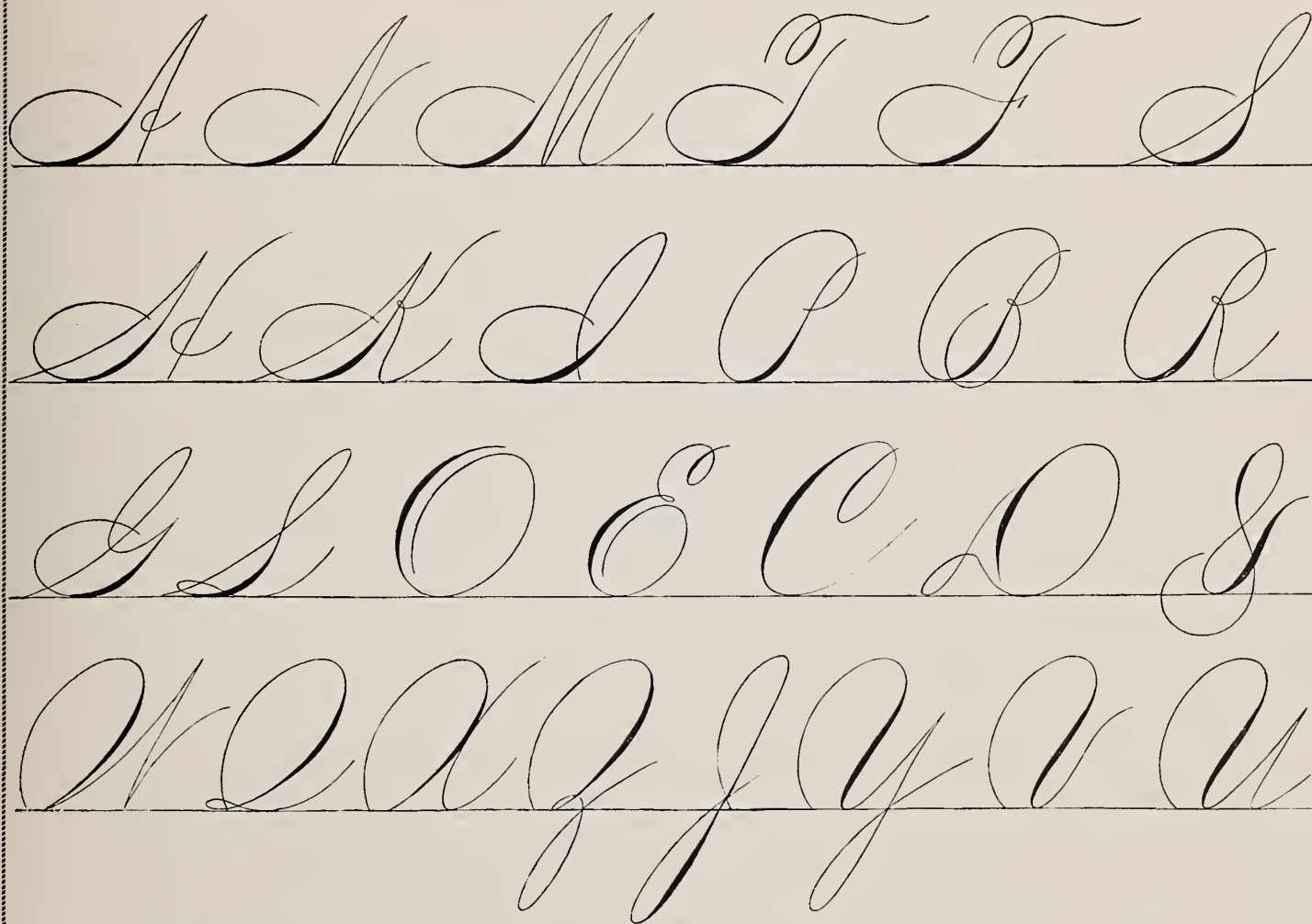
Any one whose arms are not crippled or deformed may become a good and rapid penman. *Practice is the one essential.*

Three things are important: proper position at the desk, correct way of holding the pen; and getting the best movement.

PROPER POSITION AT THE DESK.—The desk at which one writes must be of such height that when sitting erect with the feet firmly upon the floor, and the elbows on the desk the shoulders are neither elevated nor depressed. There are two positions recognized: the front position and the side position. The cut on page 2 shows a boy seated in the correct *front position*. This position is now considered the best. The *side position* is shown in the cut of the girl on this page.



CAPITAL LETTERS.





Penmanship.

MOVEMENT.—There are three movements: The finger movement, the muscular movement, and the whole-arm movement.

THE FINGER MOVEMENT is made by the fingers alone, the fore-arm resting easily and quietly on the desk. It is used very little alone by good penmen, but is generally combined, especially in shading, with the

MUSCULAR MOVEMENT.—This movement is produced by rolling the arm on the muscle just below the elbow, without moving the joints of the fingers, thumb or wrist. It is the great movement to be acquired by all learning to write.

THE WHOLE-ARM MOVEMENT is little used except in ornamental penmanship and in flourishing. It is produced by raising the whole arm free from the desk with only the last two fingers touching the paper.



Dear Sir, Hummingbirds are small.
 Command your hand I am improving
 This is nice Good penmanship pays.
 Learn to write a neat hand. America.
 Valuable moments, waste them not. Dear Friend.
 Chicago. A good hand writing is valuable.

\$23⁷⁰

Milwaukee, Wis., Aug. 1, 1895.

Received of Samuel A. Hamilton
Twenty-three and ⁷⁰/₁₀₀ Dollars, in full of
account.
Frank Garvin



\$467⁰⁰

Chicago, Sep. 2, 1895.

Seven months from date, I promise
to pay to the order of Kinghman & Winans,
Four hundred sixty-seven Dollars, with inter-
est at 6%. Value received.

Amos P. Gilsouth.

BLACKBOARD WORK.—As a pastime it is excellent practice to flourish the capital letters in their correct forms on the blackboard, and to write out in artistic style various words and mottoes. Try flourishing the birds on the blackboard in various designs.

COUNTING.

COUNTING is adding. Learn to count by ones, twos, threes, fours, fives, etc. Count the pictures in this book, the chairs in your house, the pailings on your fence, the number of beans you can hold in your hand.

Write on the blackboard the numbers up to 500. Copy on the blackboard the fifth, sixth, seventh and eighth columns and then count them up. Make other columns and add them also.

Numbers.

COUNTING—ADDING.

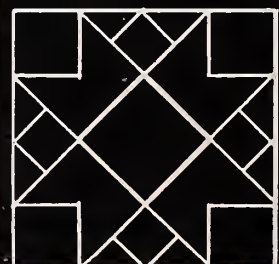
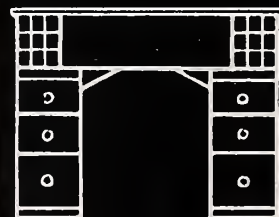
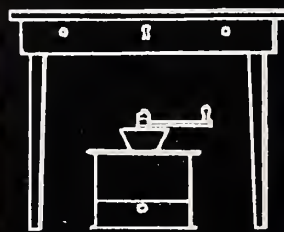
| | | | | | | | | | | |
|----|----|----|-----|---|---|---|---|---|---|---|
| 1 | 31 | 61 | 91 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 2 | 32 | 62 | 92 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 3 | 33 | 63 | 93 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 4 | 34 | 64 | 94 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 5 | 35 | 65 | 95 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 6 | 36 | 66 | 96 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 7 | 37 | 67 | 97 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 8 | 38 | 68 | 98 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 9 | 39 | 69 | 99 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 10 | 40 | 70 | 100 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 11 | 41 | 71 | 101 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 12 | 42 | 72 | 102 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 13 | 43 | 73 | 103 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 14 | 44 | 74 | 104 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 15 | 45 | 75 | 105 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 16 | 46 | 76 | 106 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 17 | 47 | 77 | 107 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 18 | 48 | 78 | 108 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 19 | 49 | 79 | 109 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 20 | 50 | 80 | 110 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 21 | 51 | 81 | 111 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 22 | 52 | 82 | 112 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 23 | 53 | 83 | 113 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 24 | 54 | 84 | 114 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 25 | 55 | 85 | 115 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 26 | 56 | 86 | 116 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 27 | 57 | 87 | 117 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 28 | 58 | 88 | 118 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 29 | 59 | 89 | 119 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |
| 30 | 60 | 90 | 120 | 2 | 3 | 2 | 4 | 2 | 5 | 2 |

DRAWING

DO NOT use a rule. Draw all lines with the hand free. Make on paper ten lines each one inch long, and mark their middle points. Make twenty lines, each two inches long, and divide each of them into three equal parts. To draw the designs on this page, first make little dots for the corners, then join these dots by drawing lines between them with a free, easy movement of the hand. The whole hand and wrist must move at the same time. Do not let the fingers move alone, but only as the whole hand moves.

Vary the designs given by changing the position of some of lines. Make many new designs.

FOR ANGLES, ETC., SEE PAGE (16).



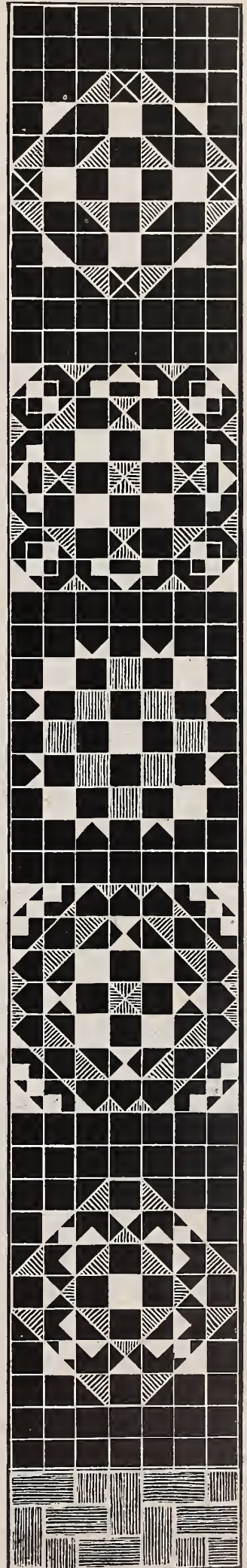
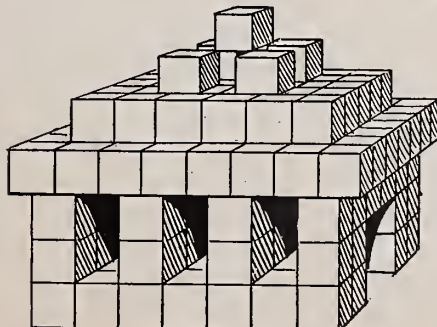
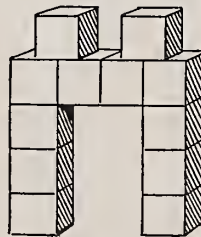
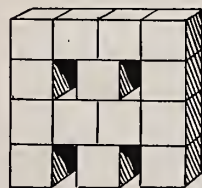
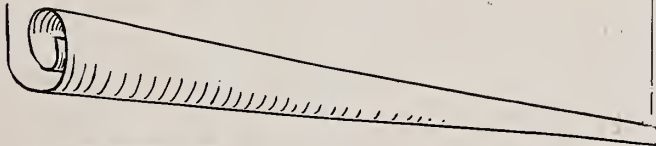
Numbers.



HOW MANY ARE

HOW MANY ARE

| | | | |
|----------|-----------|------------|-----------|
| 8 and 7? | 20 and 7? | 14 less 4? | 4 less 2? |
| 9 " 5? | 24 " 8? | 17 " 3? | 3 " 2? |
| 12 " 4? | 23 " 6? | 16 " 5? | 7 " 3? |
| 13 " 3? | 26 " 5? | 13 " 6? | 6 " 4? |
| 10 " 7? | 32 " 8? | 15 " 8? | 5 " 2? |
| 11 " 6? | 41 " 9? | 18 " 7? | 3 " 3? |
| 14 " 8? | 27 " 6? | 23 " 6? | 4 " 3? |
| 12 " 7? | 34 " 7? | 26 " 8? | 6 " 5? |
| 13 " 4? | 46 " 5? | 21 " 9? | 7 " 4? |
| 17 " 4? | 33 " 8? | 34 " 5? | 5 " 3? |
| 18 " 5? | 29 " 6? | 19 " 8? | 7 " 5? |
| 15 " 6? | 44 " 9? | 27 " 6? | 8 " 6? |
| 16 " 8? | 38 " 12? | 25 " 7? | 6 " 3? |
| 13 " 9? | 21 " 11? | 17 " 9? | 5 " 4? |
| 11 " 7? | 26 " 14? | 28 " 8? | 4 " 2? |
| 14 " 6? | 33 " 7? | 24 " 7? | 6 " 2? |
| 12 " 9? | 43 " 8? | 36 " 10? | 9 " 6? |
| 13 " 6? | 29 " 11? | 22 " 6? | 8 " 5? |
| 15 " 8? | 37 " 12? | 29 " 8? | 7 " 7? |
| 10 " 9? | 45 " 6? | 38 " 7? | 5 " 5? |
| 14 " 7? | 28 " 12? | 34 " 5? | 4 " 1? |
| 16 " 5? | 23 " 17? | 33 " 9? | 8 " 4? |
| 17 " 7? | 32 " 14? | 37 " 6? | 9 " 5? |
| 11 " 9? | 43 " 15? | 35 " 7? | 7 " 6? |
| 15 " 7? | 39 " 11? | 38 " 8? | 6 " 6? |
| 13 " 5? | 41 " 13? | 34 " 7? | 9 " 7? |
| 12 " 8? | 34 " 16? | 31 " 9? | 10 " 8? |
| 18 " 6? | 14 " 9? | 26 " 9? | 12 " 6? |
| 19 " 6? | 17 " 9? | 22 " 9? | 14 " 7? |





Numbers.

THE TWOS.

| | | | | |
|----------|-------|---|-----|----|
| One | times | 2 | is | 2 |
| Two | " | 2 | are | 4 |
| Three | " | 2 | " | 6 |
| Four | " | 2 | " | 8 |
| Five | " | 2 | " | 10 |
| Six | " | 2 | " | 12 |
| Seven | " | 2 | " | 14 |
| Eight | " | 2 | " | 16 |
| Nine | " | 2 | " | 18 |
| Ten | " | 2 | " | 20 |
| Eleven | " | 2 | " | 22 |
| Twelve | " | 2 | " | 24 |
| Thirteen | " | 2 | " | 26 |
| Fourteen | " | 2 | " | 28 |
| Fifteen | " | 2 | " | 30 |

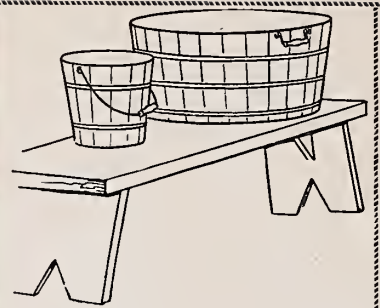
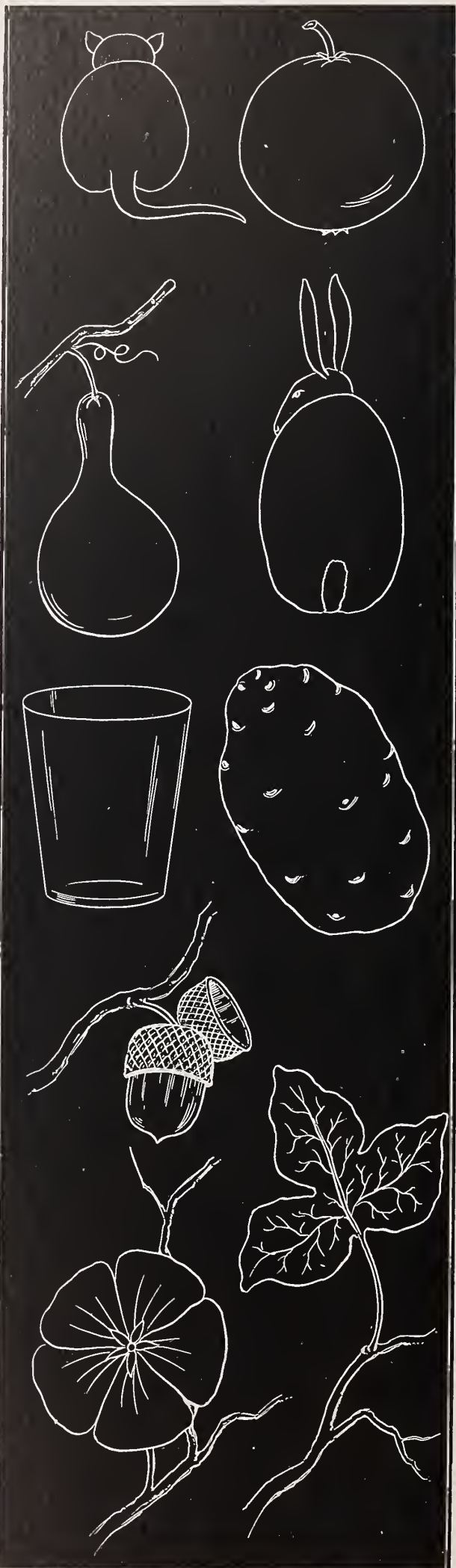


THE FIVES.

| | | | | |
|----------|-------|---|-----|----|
| One | times | 3 | is | 3 |
| Two | " | 3 | are | 6 |
| Three | " | 3 | " | 9 |
| Four | " | 3 | " | 12 |
| Five | " | 3 | " | 15 |
| Six | " | 3 | " | 18 |
| Seven | " | 3 | " | 21 |
| Eight | " | 3 | " | 24 |
| Nine | " | 3 | " | 27 |
| Ten | " | 3 | " | 30 |
| Eleven | " | 3 | " | 33 |
| Twelve | " | 3 | " | 36 |
| Thirteen | " | 3 | " | 39 |
| Fourteen | " | 3 | " | 42 |
| Fifteen | " | 3 | " | 45 |

Drawing.

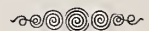
Sketch the forms of the pictures lightly at first with a lead pencil. When you have them right make the lines heavy.



Numbers.

HOW MANY

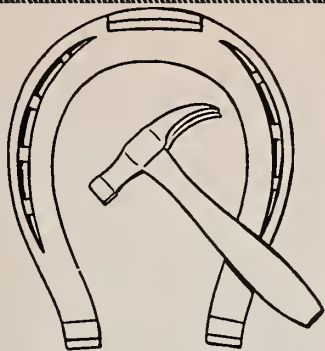
| | | | | |
|-----------|----|-----|----|-----|
| Twos | in | 2? | in | 6? |
| Fours | " | 4? | " | 8? |
| Threes | " | 6? | " | 9? |
| Sevens | " | 14? | " | 21? |
| Fives | " | 10? | " | 15? |
| Sixes | " | 12? | " | 18? |
| Eights | " | 16? | " | 24? |
| Nines | " | 18? | " | 27? |
| Twelves | " | 24? | " | 36? |
| Thirteens | " | 26? | " | 39? |
| Fourteens | " | 28? | " | 42? |
| Fifteens | " | 30? | " | 45? |



Problems.

1. Carl has 10 apples and gives his sister 5; how many has he left?
2. If his sister gave back to him 5 apples; how many would he then have? How many would she have?
3. Rose has 12 oranges, she wishes to sell them at 3 cents each; how much money should she receive?
4. A boy wishes to buy fans at 3 cents each; he has 27 cents; how many can he buy?
5. If a boy sells 9 fans at 5 cents each; what does he receive for them?

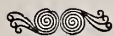




Numbers.

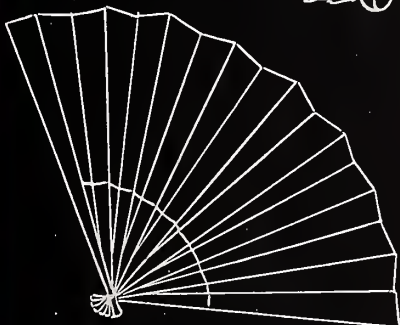
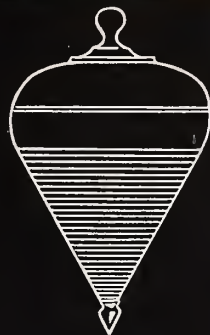
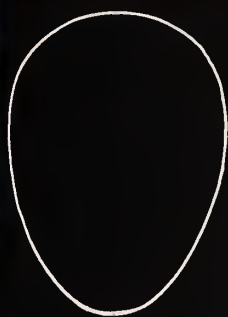
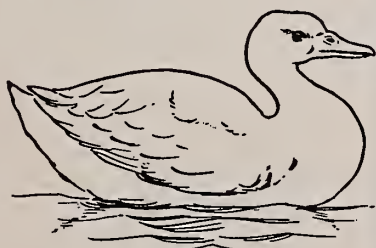
THE FOURS.

| | | | |
|----------|---------|-----|----|
| Once | 4 | is | 4 |
| Two | times 4 | are | 8 |
| Three | " 4 | " | 12 |
| Four | " 4 | " | 16 |
| Five | " 4 | " | 20 |
| Six | " 4 | " | 24 |
| Seven | " 4 | " | 28 |
| Eight | " 4 | " | 32 |
| Nine | " 4 | " | 36 |
| Ten | " 4 | " | 40 |
| Eleven | " 4 | " | 44 |
| Twelve | " 4 | " | 48 |
| Thirteen | " 4 | " | 52 |
| Fourteen | " 4 | " | 56 |
| Fifteen | " 4 | " | 60 |



THE FIVES.

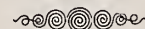
| | | | |
|----------|---------|-----|----|
| Two | times 5 | are | 10 |
| Three | " 5 | " | 15 |
| Four | " 5 | " | 20 |
| Five | " 5 | " | 25 |
| Six | " 5 | " | 30 |
| Seven | " 5 | " | 35 |
| Eight | " 5 | " | 40 |
| Nine | " 5 | " | 45 |
| Ten | " 5 | " | 50 |
| Eleven | " 5 | " | 55 |
| Twelve | " 5 | " | 60 |
| Thirteen | " 5 | " | 65 |
| Fourteen | " 5 | " | 70 |
| Fifteen | " 5 | " | 75 |



Numbers.

HOW MANY

| | | |
|-----------|-------|--------|
| Twos | in 8? | in 10? |
| Fours | " 12? | " 20? |
| Threes | " 12? | " 15? |
| Fives | " 20? | " 25? |
| Sevens | " 28? | " 35? |
| Sixes | " 24? | " 30? |
| Eights | " 32? | " 40? |
| Nines | " 36? | " 45? |
| Twelves | " 48? | " 60? |
| Tens | " 40? | " 50? |
| Thirteens | " 52? | " 65? |
| Fourteens | " 56? | " 70? |
| Elevens | " 44? | " 55? |
| Fifteens | " 60? | " 75? |



EXAMPLES.

1. What will be the cost of 7 quarts of milk at 4 cents a quart?

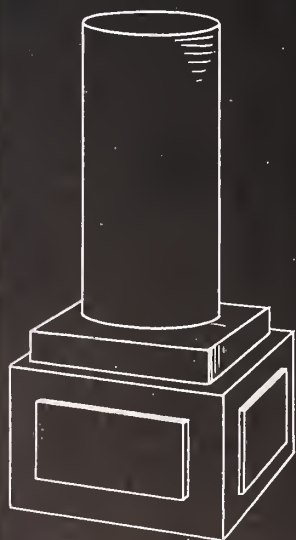
2. A girl wishes to buy two dolls worth 15 cents each: what must she pay for them?

3. Five boys each buy a top for 5 cents. How much does the clerk receive for the five tops?

4. A merchant sells five yards of cloth for 70 cents. What is it worth a yard?

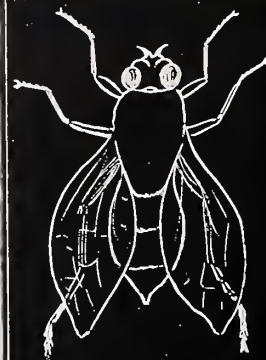
5. A clerk charges 65 cents for 13 quarts of berries. What are they worth a quart?





Drawing.

FIRST sketch in very light lines on the blackboard or on paper the figure to be made, erasing and changing where necessary; then make the lines heavy and put in the shading. Use both the blackboard and paper.



Multiplication.

THE SIXES.

| | | | |
|----------|-------|----|--------|
| Once | 6 | is | 6 |
| Two | times | 6 | are 12 |
| Three | " | 6 | " 18 |
| Four | " | 6 | " 24 |
| Five | " | 6 | " 30 |
| Six | " | 6 | " 36 |
| Seven | " | 6 | " 42 |
| Eight | " | 6 | " 48 |
| Nine | " | 6 | " 54 |
| Ten | " | 6 | " 60 |
| Eleven | " | 6 | " 66 |
| Twelve | " | 6 | " 72 |
| Thirteen | " | 6 | " 78 |
| Fourteen | " | 6 | " 84 |
| Fifteen | " | 6 | " 90 |

Numbers.

HOW MANY

| | |
|-----------|--------|
| Twos | in 12? |
| Threes | " 18? |
| Fours | " 24? |
| Fives | " 30? |
| Sixes | " 36? |
| Sevens | " 42? |
| Eights | " 48? |
| Nines | " 54? |
| Tens | " 60? |
| Elevens | " 66? |
| Twelves | " 72? |
| Thirteens | " 78? |
| Fourteens | " 84? |
| Fifteens | " 90? |
| Ones | " 6? |

EXPLANATION.

Observe that *three* times 6, which is 18, is six more than *two* times 6, which is 12; that is, 6 is added to 12, making 18; and in *four* times 6, six is again added to 18, making 24.

Notice also that in the *twos*, 2 is added to each successive number; and that in the *threes*, 3 is added; in the *fours*, 4 is added, and so on. Thus where any number is forgotten it may often be found by adding to one that is remembered the proper number; in the twos add 2, in the threes add 3, to the one you know and you will have the next number.

Playing School.

Write the programme on the blackboard.

PROGRAMME.

| A. M. | P. M. |
|-----------------------|--------------------|
| Roll call. | Roll call. |
| Opening Exercises. | Opening Exercises. |
| Reading and Spelling. | Drawing. |
| Arithmetic. | Songs. |
| — Recess. — | Writing. |
| Reading and Spelling. | — Recess. — |
| Oral Exercises. | Geography. |
| Written Arithmetic. | Calisthenics. |
| Written Spelling. | Map Drawing. |

SUGGESTIONS TO THE TEACHER.

1. The class should recite sometimes in concert, but generally as individuals are called on.
2. Give the question before you name the one who is to answer it. In that way you will secure better attention.
3. When you ask a question never intimate what the answer is till you are sure that none of the class can answer it.
4. Never give an explanation of any thing that any of the class can explain. Make your pupils do most of the work.
5. Give short lessons and be sure that you thoroughly understand them yourself. Neither teacher nor pupil should guess at answers.

Multiplication.

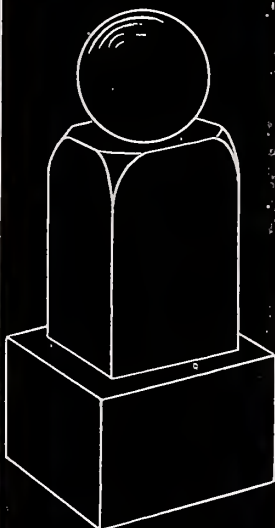
THE SEVENS.

| | | | |
|----------|-------|----|--------|
| Once | 7 | is | 7 |
| Two | times | 7 | are 14 |
| Three | " | 7 | " 21 |
| Four | " | 7 | " 28 |
| Five | " | 7 | " 35 |
| Six | " | 7 | " 42 |
| Seven | " | 7 | " 49 |
| Eight | " | 7 | " 56 |
| Nine | " | 7 | " 63 |
| Ten | " | 7 | " 70 |
| Eleven | " | 7 | " 77 |
| Twelve | " | 7 | " 84 |
| Thirteen | " | 7 | " 91 |
| Fourteen | " | 7 | " 98 |
| Fifteen | " | 7 | " 105 |

Numbers.

HOW MANY

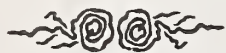
| | | |
|-----|----|-------|
| 7's | in | 14 ? |
| " | " | 35 ? |
| " | " | 28 ? |
| " | " | 49 ? |
| " | " | 42 ? |
| " | " | 21 ? |
| " | " | 56 ? |
| " | " | 63 ? |
| " | " | 77 ? |
| " | " | 70 ? |
| " | " | 84 ? |
| " | " | 98 ? |
| " | " | 91 ? |
| " | " | 7 ? |
| " | " | 105 ? |



THE SIGNS.

There are five signs often used in arithmetic. The sign of Addition, +, read *plus*, used between numbers which are to be added. The sign of Subtraction, —, read *minus*, used between two numbers, when the second is to be taken from the first. The sign of Multiplication, ×, often used between numbers which are to be multiplied together (read *multiplied by*,) and the sign of Division, ÷, read *divided by*, used between two numbers when the first is to be divided by the second.

+ means *plus*.
— means *minus*.
× *multiplied by*.
÷ *divided by*.



Multiplication.

THE EIGHTS.

| | | |
|----------|-------------|-----|
| Once | 8 is | 8 |
| Two | times 8 are | 16 |
| Three | " 8 " | 24 |
| Four | " 8 " | 32 |
| Five | " 8 " | 40 |
| Six | " 8 " | 48 |
| Seven | " 8 " | 56 |
| Eight | " 8 " | 64 |
| Nine | " 8 " | 72 |
| Ten | " 8 " | 80 |
| Eleven | " 8 " | 88 |
| Twelve | " 8 " | 96 |
| Thirteen | " 8 " | 104 |
| Fourteen | " 8 " | 112 |
| Fifteen | " 8 " | 120 |



THE NINES.

| | | |
|----------|-------------|-----|
| Once | 9 is | 9 |
| Two | times 9 are | 18 |
| Three | " 9 " | 27 |
| Four | " 9 " | 36 |
| Five | " 9 " | 45 |
| Six | " 9 " | 54 |
| Seven | " 9 " | 63 |
| Eight | " 9 " | 72 |
| Nine | " 9 " | 81 |
| Ten | " 9 " | 90 |
| Eleven | " 9 " | 99 |
| Twelve | " 9 " | 108 |
| Thirteen | " 9 " | 117 |
| Fourteen | " 9 " | 126 |
| Fifteen | " 9 " | 135 |

| | | | | | | |
|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |

Seven times 3 are 21.

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

| | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

These figures are equal in area.

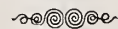
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

Eight times five are forty.



What is the area of the Cylinder?

The sign of equality, =, read *equals*, is placed between numbers to show that they are equal.



Numbers.



HOW MANY

| | |
|-----------|------------|
| 8's in 8? | 9's in 18? |
| " " 32? | " " 36? |
| " " 24? | " " 27? |
| " " 48? | " " 45? |
| " " 56? | " " 72? |
| " " 40? | " " 81? |
| " " 64? | " " 63? |
| " " 88? | " " 99? |
| " " 72? | " " 90? |
| " " 96? | " " 108? |
| " " 80? | " " 126? |
| " " 104? | " " 117? |
| " " 120? | " " 54? |
| " " 112? | " " 135? |



Uses of the Signs.

$$7+16=23.$$

$$8+4+3=15.$$

$$16-3=13.$$

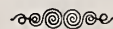
$$22-7=15.$$

$$8\times 6=48.$$

$$9\times 13=117.$$

$$64\div 8=8.$$

$$135\div 9=15.$$



Areas.



The area of a board, of a garden or of any surface may be found by multiplying its length by its breadth; but both length and breadth must be of the same kind, i. e. feet, inches, yards, etc.

Numbers

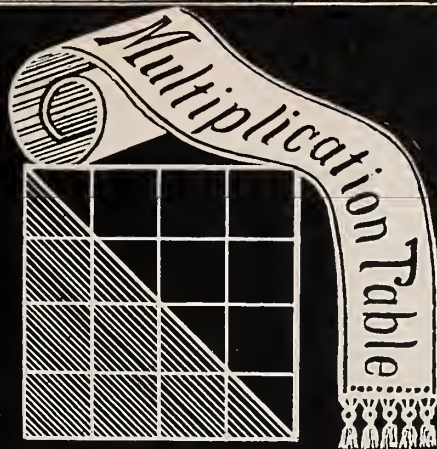
Multiplication.

THE TENS.

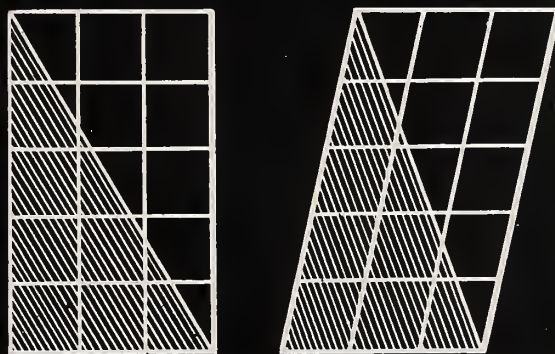
| | | |
|----------|--------------|-----|
| Once | 10 is | 10 |
| Two | times 10 are | 20 |
| Three | " 10 " | 30 |
| Four | " 10 " | 40 |
| Five | " 10 " | 50 |
| Six | " 10 " | 60 |
| Seven | " 10 " | 70 |
| Eight | " 10 " | 80 |
| Nine | " 10 " | 90 |
| Ten | " 10 " | 100 |
| Eleven | " 10 " | 110 |
| Twelve | " 10 " | 120 |
| Thirteen | " 10 " | 130 |
| Fourteen | " 10 " | 140 |
| Fifteen | " 10 " | 150 |

THE ELEVENS.

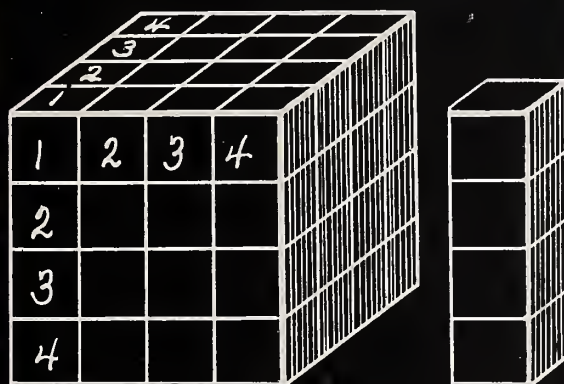
| | | |
|----------|--------------|-----|
| Once | 11 is | 11 |
| Two | times 11 are | 22 |
| Three | " 11 " | 33 |
| Four | " 11 " | 44 |
| Five | " 11 " | 55 |
| Six | " 11 " | 66 |
| Seven | " 11 " | 77 |
| Eight | " 11 " | 88 |
| Nine | " 11 " | 99 |
| Ten | " 11 " | 110 |
| Eleven | " 11 " | 121 |
| Twelve | " 11 " | 132 |
| Thirteen | " 11 " | 143 |
| Fourteen | " 11 " | 154 |
| Fifteen | " 11 " | 165 |



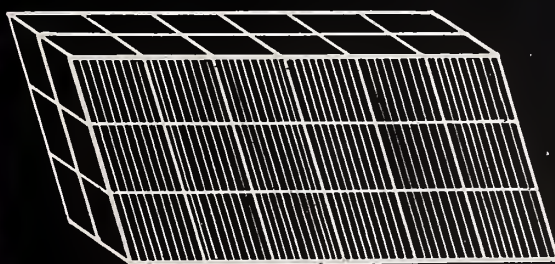
The Triangle is one-half of the Square.



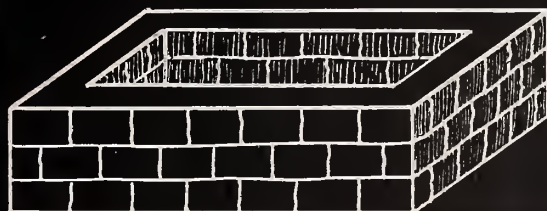
What is the area of these triangles?



Four times four times four = 64.



How many blocks?



Numbers.

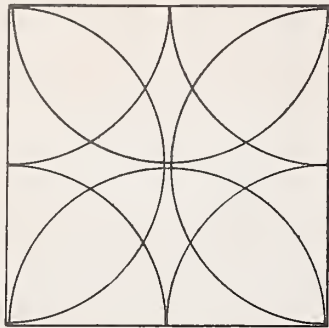
HOW MANY

| | |
|-------------|-------------|
| 10's in 40? | 11's in 33? |
| " " 80? | " " 11? |
| " " 70? | " " 44? |
| " " 30? | " " 77? |
| " " 50? | " " 66? |
| " " 90? | " " 22? |
| " " 20? | " " 88? |
| " " 60? | " " 55? |
| " " 100? | " " 99? |
| " " 130? | " " 110? |
| " " 120? | " " 132? |
| " " 100? | " " 143? |
| " " 10? | " " 121? |
| " " 140? | " " 154? |
| " " 150? | " " 165? |

Areas.

See triangles on page 16. The area of any triangle is $\frac{1}{2}$ a parallelogram. Therefore the area of any triangle is $\frac{1}{2}$ the product of its base multiplied by its height.

Draw figures on the blackboard and find their areas. Also draw other figures and designs and find their areas.



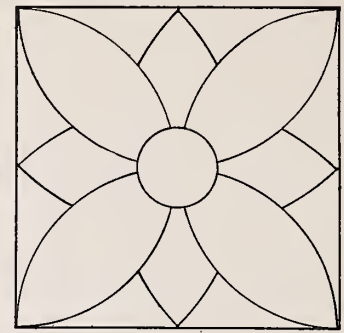
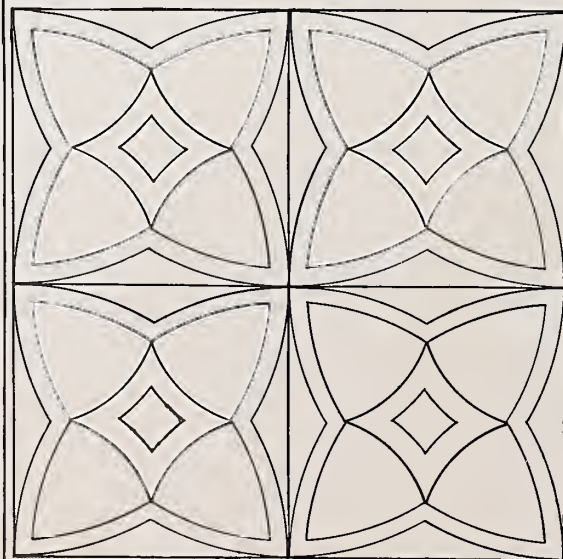
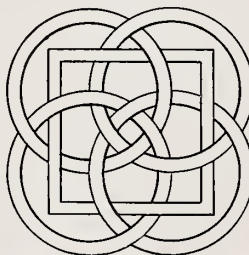
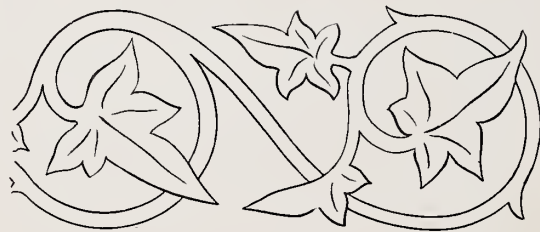
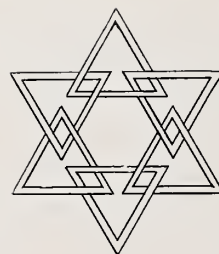
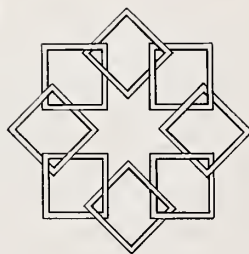
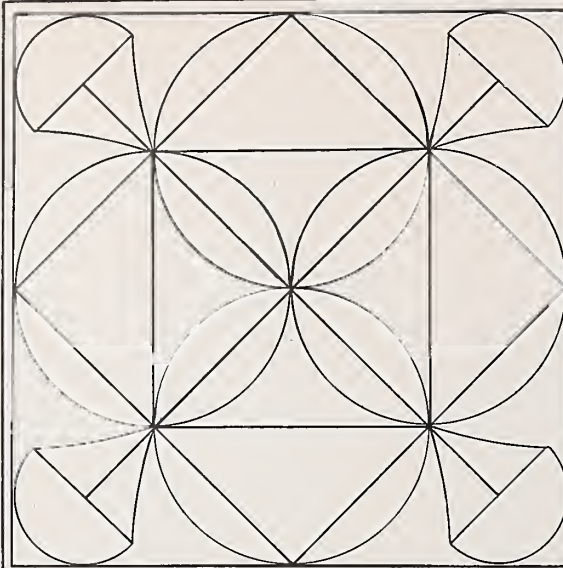
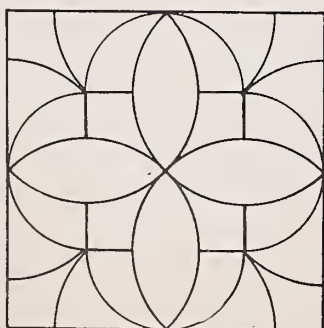
Numbers.

THE TWELVES.

| | | | |
|----------|----------|-----|-----|
| Two | times 12 | are | 24 |
| Three | " 12 | " | 36 |
| Four | " 12 | " | 48 |
| Five | " 12 | " | 60 |
| Six | " 12 | " | 72 |
| Seven | " 12 | " | 84 |
| Eight | " 12 | " | 96 |
| Nine | " 12 | " | 108 |
| Ten | " 12 | " | 120 |
| Eleven | " 12 | " | 132 |
| Twelve | " 12 | " | 144 |
| Thirteen | " 12 | " | 156 |
| Fourteen | " 12 | " | 168 |
| Fifteen | " 12 | " | 180 |

THE THIRTEENS.

| | | | |
|----------|----------|-----|-----|
| Two | times 13 | are | 26 |
| Three | " 13 | " | 39 |
| Four | " 13 | " | 52 |
| Five | " 13 | " | 65 |
| Six | " 13 | " | 78 |
| Seven | " 13 | " | 91 |
| Eight | " 13 | " | 104 |
| Nine | " 13 | " | 117 |
| Ten | " 13 | " | 130 |
| Eleven | " 13 | " | 143 |
| Twelve | " 13 | " | 156 |
| Thirteen | " 13 | " | 169 |
| Fourteen | " 13 | " | 182 |
| Fifteen | " 13 | " | 195 |



Numbers.

HOW MANY

| | | | |
|---------|------|---------|------|
| 12's in | 36? | 13's in | 26? |
| " " | 24? | " " | 39? |
| " " | 60? | " " | 65? |
| " " | 48? | " " | 52? |
| " " | 12? | " " | 91? |
| " " | 72? | " " | 78? |
| " " | 96? | " " | 104? |
| " " | 84? | " " | 117? |
| " " | 108? | " " | 156? |
| " " | 132? | " " | 130? |
| " " | 156? | " " | 143? |
| " " | 120? | " " | 182? |
| " " | 168? | " " | 169? |
| " " | 144? | " " | 195? |
| " " | 180? | | |



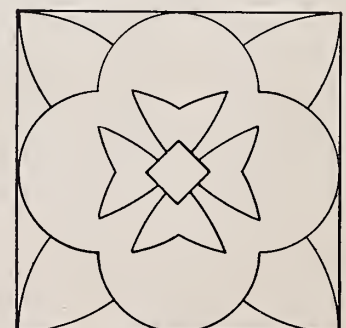
Drawing.

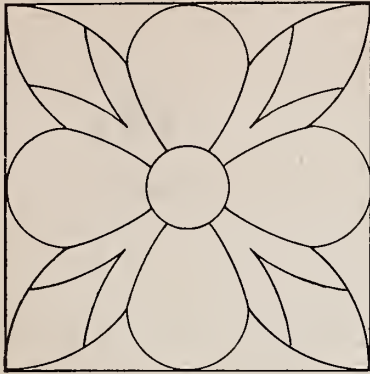


A rule and a compass are necessary instruments in drawing the figures or designs on these pages. The ten-cent compass and a common rule are all that are needed.

First lay off the square or squares, then draw the diagonals and find the centers to be used.

Make other designs of your own on the Blackboard and then draw them also on paper.





Numbers.

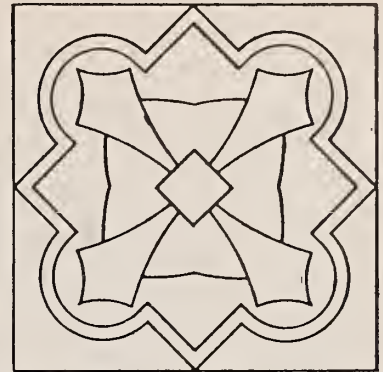
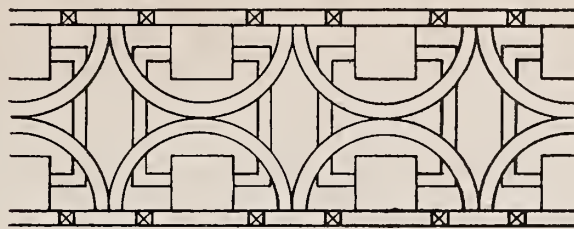
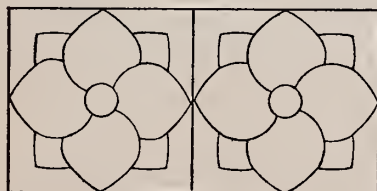
THE FOURTEENS.

| | | | | |
|----------|-------|----|-----|-----|
| Two | times | 14 | are | 28 |
| Three | " | 14 | " | 42 |
| Four | " | 14 | " | 56 |
| Five | " | 14 | " | 70 |
| Six | " | 14 | " | 84 |
| Seven | " | 14 | " | 98 |
| Eight | " | 14 | " | 112 |
| Nine | " | 14 | " | 126 |
| Ten | " | 14 | " | 140 |
| Eleven | " | 14 | " | 154 |
| Twelve | " | 14 | " | 168 |
| Thirteen | " | 14 | " | 182 |
| Fourteen | " | 14 | " | 196 |
| Fifteen | " | 14 | " | 210 |



THE FIFTEENS.

| | | | | |
|----------|-------|----|-----|-----|
| Two | times | 15 | are | 30 |
| Three | " | 15 | " | 45 |
| Four | " | 15 | " | 60 |
| Five | " | 15 | " | 75 |
| Six | " | 15 | " | 90 |
| Seven | " | 15 | " | 105 |
| Eight | " | 15 | " | 120 |
| Nine | " | 15 | " | 135 |
| Ten | " | 15 | " | 150 |
| Eleven | " | 15 | " | 165 |
| Twelve | " | 15 | " | 180 |
| Thirteen | " | 15 | " | 195 |
| Fourteen | " | 15 | " | 210 |
| Fifteen | " | 15 | " | 225 |

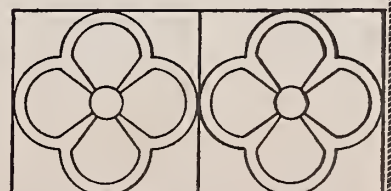


Relations of Numbers.

1. Mr. A. earns \$12 a week and his son $\frac{1}{2}$ as much. How much does his son earn?
2. 6 is what part of 12?
3. 12 is what part of 36?
4. Mr. Smith has 36 sheep and sells $\frac{1}{3}$ of them. How many did he sell?
5. How many sheep has Mr. Smith left?
6. How many thirds has he left after selling the $\frac{1}{3}$?
7. 24 is what part of 36?



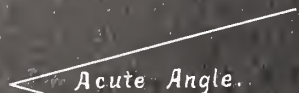
| What is | What is |
|---------------------|----------------------|
| $\frac{1}{2}$ of 6? | $\frac{2}{3}$ of 12? |
| $\frac{1}{2}$ " 26? | $\frac{2}{3}$ " 9? |
| $\frac{1}{2}$ " 34? | $\frac{2}{3}$ " 15? |
| $\frac{1}{2}$ " 42? | $\frac{2}{3}$ " 30? |
| $\frac{1}{2}$ " 46? | $\frac{1}{4}$ " 16? |
| $\frac{1}{2}$ " 72? | $\frac{3}{4}$ " 16? |
| $\frac{1}{3}$ " 9? | $\frac{1}{5}$ " 10? |
| $\frac{1}{3}$ " 15? | $\frac{2}{5}$ " 10? |
| $\frac{1}{3}$ " 21? | $\frac{3}{5}$ " 10? |
| $\frac{1}{3}$ " 36? | $\frac{2}{5}$ " 40? |
| $\frac{1}{3}$ " 45? | $\frac{4}{5}$ " 40? |
| $\frac{1}{5}$ " 20? | $\frac{1}{7}$ " 35? |
| $\frac{1}{5}$ " 15? | $\frac{2}{7}$ " 35? |
| $\frac{1}{5}$ " 35? | $\frac{5}{7}$ " 35? |
| $\frac{1}{5}$ " 40? | $\frac{1}{8}$ " 56? |
| $\frac{1}{5}$ " 65? | $\frac{3}{8}$ " 56? |
| $\frac{1}{5}$ " 75? | $\frac{7}{8}$ " 56? |



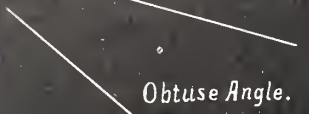
Forms of Areas.

Right Angles. Perpendicular Lines.

Parallel Lines.



Acute Angle.



Obtuse Angle.



A Square.

Equal Sides & Equal Angles.



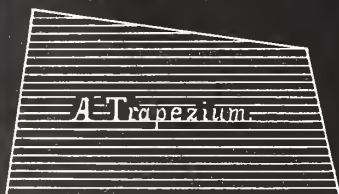
A Rectangle.

Equal Angles.



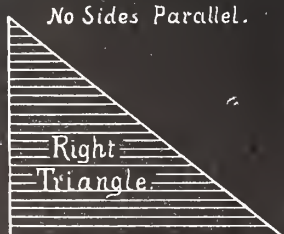
A Trapezoid.

Two Sides Parallel.



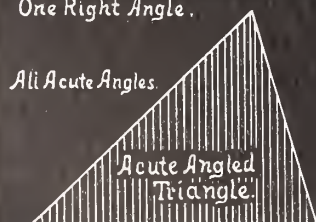
A Trapezium.

No Sides Parallel.



Right Triangle.

One Right Angle.



All Acute Angles.

Acute Angled Triangle.

Arithmetical Tables.

TO KEEP STORE WE MUST KNOW THE TABLES.

UNITED STATES MONEY.

10 Mills make 1 Cent.....c or ct.
10 Cents " 1 Dime.....d.
10 Dimes " 1 Dollar.....\$
10 Dollars " 1 Eagle.....E.

How many cents in a dollar? In a half-dollar? In a quarter-dollar?

The money of the Dominion of Canada is like that of the U. S.

AVOIRDUPOIS WEIGHT

is used to weigh groceries, hay, coal, and all heavy articles.

16 Ounces make 1 Pound.....lb.
100 Pounds " 1 Hundred weight.....cwt.
20 cwt. or 2,000 lbs. make 1 Ton.....T.

How many ounces in 5½ pounds of sugar?
How many cwt. in 3½ tons of hay?

LONG MEASURE

is used in measuring dry goods, lots, gardens, and lengths, breadths and distances.

12 Inches make 1 Foot.....ft.
3 Feet " 1 Yard.....yd.
5½ Yds. or 16½ ft. " 1 Rod.....rd.
320 Rods make " 1 Mile.....mi.

SQUARE MEASURE

is used in finding the areas of surfaces as of boards, land, plastering, painting, paving, etc.

144 Square Inches (sq. in.) make 1 Square Foot.....sq. ft.
9 Square Feet make 1 Square Yard..sq. yd.
30¼ Square Yards " 1 Square Rod..sq. rd.
160 Square Rods " 1 Acre.....A.
640 Acres " 1 Square Mile..sq. mi.

LIQUID MEASURE

is used in measuring liquors, water, molasses, vinegar, milk, etc.

4 Gills (gi.) make 1 Pint.....pt.
2 Pints " 1 Quart.....qt.
4 Quarts " 1 Gallon.....gal.
31½ Gallons " 1 Barrel.....bbl.



Equilateral Triangle.

Sides all Equal.



Isosceles Triangle.

Two Sides Equal.



Scalene Triangle.

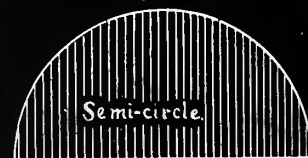
One Obtuse Angle.



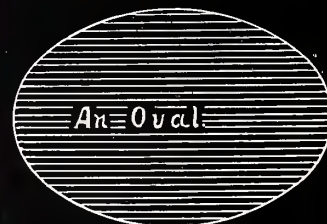
A Hexagon.



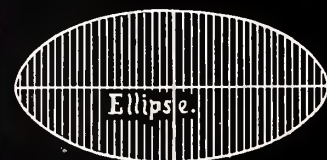
A Circle.



Semi-circle.

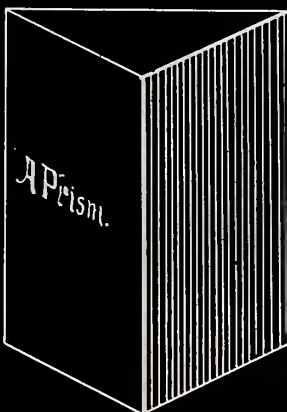
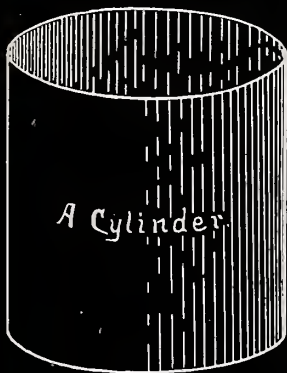
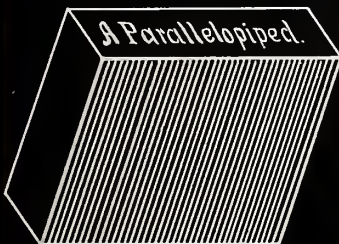
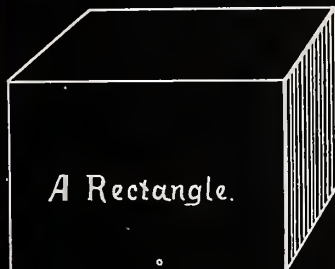
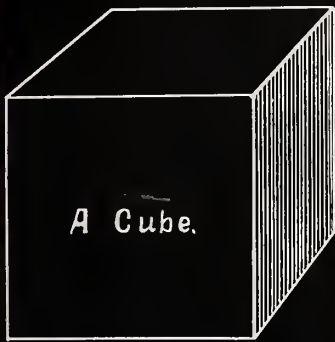


An Oval.



Ellipse.

Forms of Solids.



Arithmetical Tables

WRITE THEM NICELY ON THE
BLACKBOARD TILL YOU
KNOW THEM.

DRY MEASURE

is used in measuring grain, as oats, wheat,
corn; fruits, vegetables, salt, etc.

2 Pints (pt.) make 1 Quartqt.
8 Quarts " 1 Peckpk.
4 Pecks " 1 Bushelbu.

CUBIC MEASURE

is used in finding the number of solid feet or
yards in a body, or the capacity in gallons of
barrels, tanks, cisterns or other vessels.

1728 Cubic Inches (cu. in.) make 1
Cubic Footcu. ft.
27 Cubic Feet make 1 Cubic Yard.....cu. yd.
16 Cubic Feet " 1 Cord Foot.....cd. ft.
8 Cord Feet or 128 Cubic Feet make 1
Cord of Wood.....cd.
24³/₄ Cubic Feet make 1 Perch of Stone...Pch.

TIME TABLE

is used in dividing time, as days, hours,
years, etc.

60 Seconds (sec.) make 1 Minutemin.
60 Minutes " 1 Hourhr.
24 Hours " 1 Dayda.
7 Days " 1 Weekwk.
4 Weeks " 1 Monthmo.
12 Months " 1 Yearyr.
100 Years " 1 Century.....c.

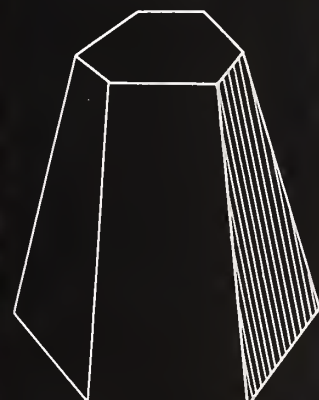
IN COUNTING,

12 Things make 1 Dozendoz.
12 Dozen " 1 Grossgr.
20 Things " 1 Score.

IN PAPER,

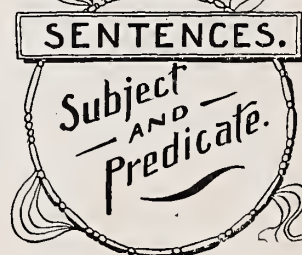
24 Sheets make 1 Quire.
20 Quires " 1 Ream.
2 Reams " 1 Bundle.
5 Bundles " 1 Bale.

Playing store is a valuable educational
amusement for children.



LANGUAGE LESSONS.

Sentences.



When we speak or write we always say something of some person, place or thing.

Examples:—

| | |
|-------------------|-----------------------------------|
| Birds sing. | New York is a large city. |
| Boys play. | Papa has gone from home. |
| Girls read books. | We should like to have a holiday. |

In each of these expressions the words used are so arranged as to make complete sense, and hence each group is called a **Sentence**.

RULE.—The first word of every sentence must begin with a capital letter.

Write ten sentences in your scratch book and ten on the blackboard. Be sure to use the *rule*.

SUBJECT AND PREDICATE.—In every sentence we use, we say or assert something; and we say or assert it of some object about which we speak. So you see a sentence has two parts. One part is the name of the thing about which we speak; the other part is what we say of it. In the sentence, "Birds sing," we speak of "Birds," and we say they "sing." "Birds" is called the **Subject** of the sentence, because it is what we speak of; and "sing" is called the **Predicate**, because it is what is said or predicated or asserted of the subject.

So in the sentence, "We should like to have a holiday;" "We" is the subject, "should like to have a holiday" is the predicate.

Write on the blackboard ten sentences, using for subjects :

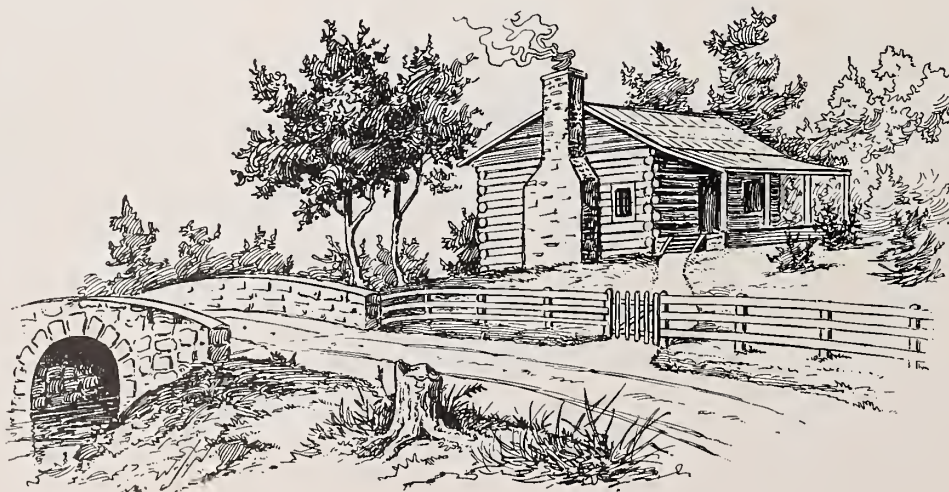
| | | | | |
|---------|--------|-------|--------|-------|
| Men, | Bees, | Fan, | Robin, | Fish, |
| Apples, | Knife, | Mice, | Ships, | Mary. |

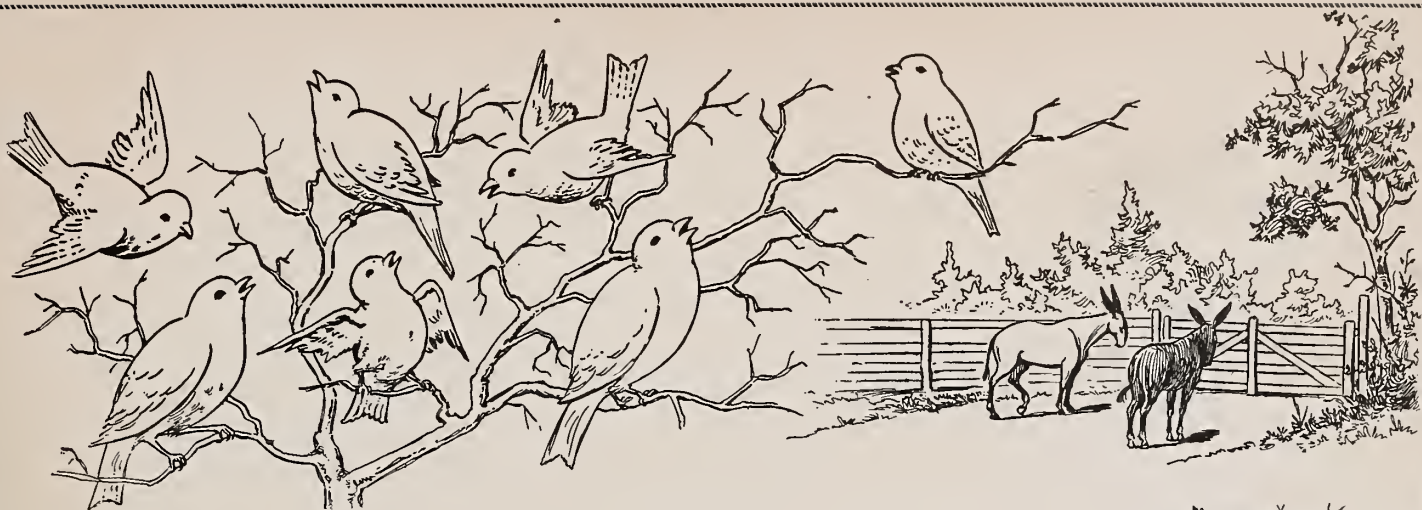
Write on the blackboard ten sentences, using for predicates :

| | | | | |
|--------|-------|--------|--------|--------|
| sing, | run, | make, | write, | play, |
| taste, | sail, | speak, | fly, | build. |

Write ten other sentences on the blackboard and draw a line under each subject and under each predicate.

Observe the use of the Rule.





Kinds of Sentences.

IN speaking or writing we sometimes state facts, sometimes give directions or commands, and sometimes ask questions or make exclamations about something that excites us. So we have different kinds of sentences.

1. The **DECLARATIVE**, or telling sentence, is used in stating facts; as, Knowledge is useful. Great fields of cotton are grown in the Southern States.

2. The **INTERROGATIVE**, or asking sentence, is used in asking questions; as, Who invented the clock? What kind of oranges are these?

3. The **IMPERATIVE**, or ordering sentence, is used in ordering, directing or commanding; as, Ralph, shut the door. Please give me three yards of that ribbon.

4. The **EXCLAMATORY**, or exclaiming sentence, is used in expressing great surprise or strong feeling; as, Henry, how red your face is! O, how the wind blows!

What mark should be used at the end of each of these sentences? The following rules tell.

RULES:—1. A *period* (.) should be placed at the end of every *declarative* and *imperative* sentence. 2. An *interrogation mark* (?) should be placed at the end of every *interrogative* sentence. 3. An *exclamation mark* (!) should be placed at the end of every *exclamatory* sentence.

Write five sentences of each kind on the blackboard, and be careful to place the proper mark after each.

LETTER OF FRIENDSHIP.

Dear Mamie:—

I have been real well since you went home. Did we not have a nice time at the party? My, how I wish we could go tonight! I must tell you that I have one of those new books we saw at Mr. Palmer's. I like it so much. Come up next week and help me read it. Mamma is away at the Springs for a week's visit. O, I am so lonesome! But as all shadows soon pass, I expect to-morrow's sun will shine on me. I trust you are all well. Give my kind regards to your people.

Affectionately,

LAURA MITCHELL.





Nouns.



HOW TO WRITE NAMES, OR NOUNS.

All persons have names, so have all the things we use and eat, all streets, towns, countries, rivers, seas and mountains. Each has its own *special* name, which does not apply to others.

Examples:—

William M. Parker, Alice Carey, State Street, Union Avenue, Denver, California, Germany, Ohio River, Lake Michigan, Atlantic Ocean.

The same is true of the names of churches, societies, books, plays, titles, days of the week and months of the year.

Examples:—

Methodist Church, Young Men's Christian Association, History of England, Declaration of Independence, Aunt, Uncle, Tuesday, July, Joshua Whitcomb, The Merchant of Venice.

All such names apply to some *particular* person, place or thing, and are called **Proper Nouns**.

RULE.—Every proper noun should begin with a capital letter.

Exercises.

Write on the blackboard short sentences, using proper names of each of the following:

| | | |
|------------|----------------------|------------|
| a person, | a lake, | a church, |
| a street, | a sea, | an island, |
| a town, | a river, | a book, |
| a country, | a day of the week, | a title, |
| a state, | a month of the year, | a play. |

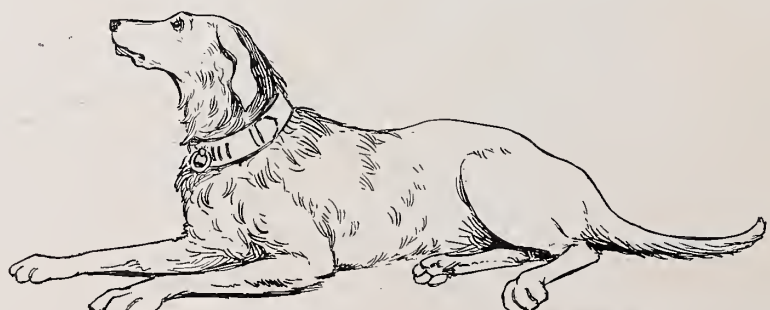
OTHER NOUNS.

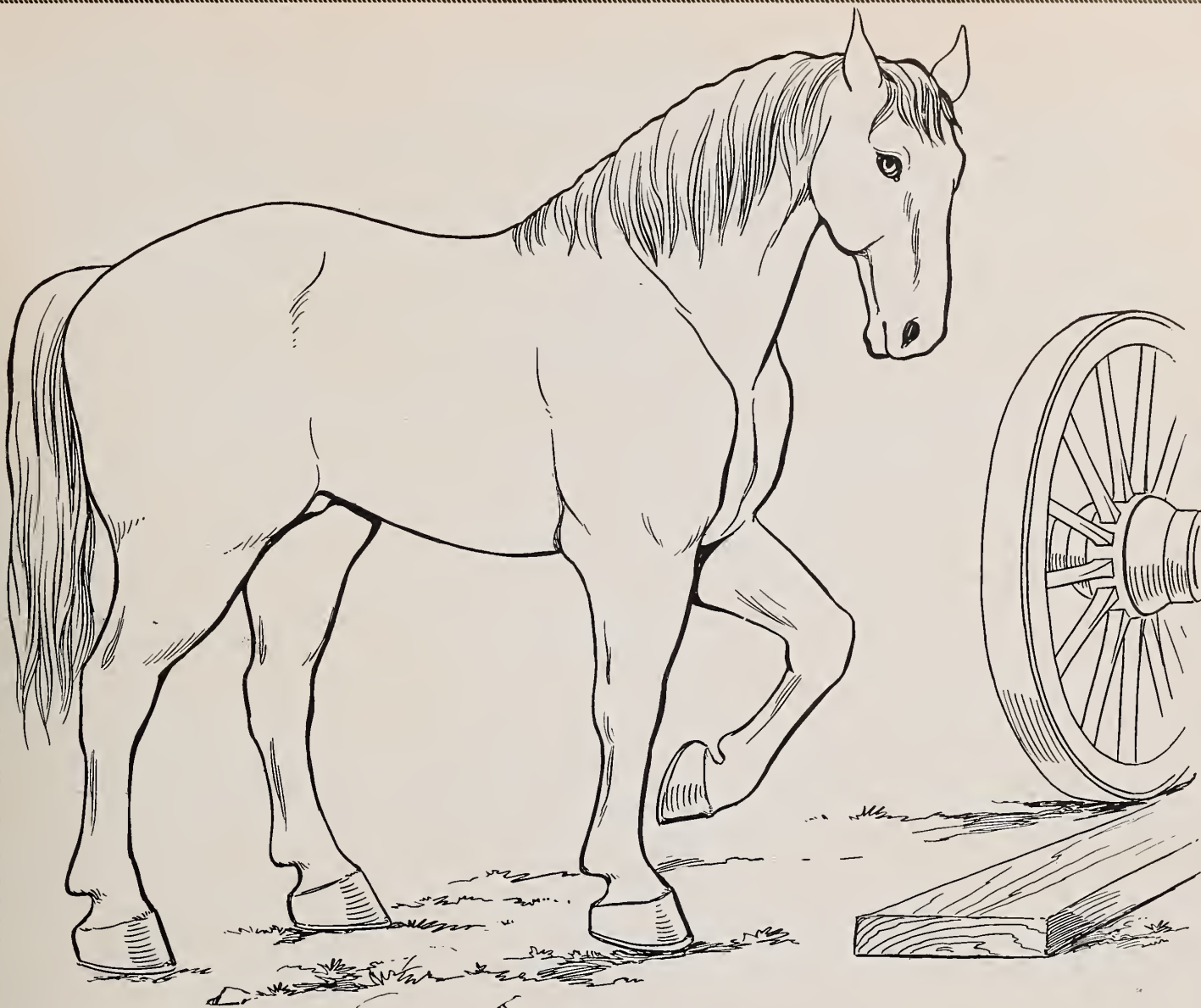
There are many other names, or nouns that do not apply to any *particular* person, place or thing; as man, village, city, house, tree, stove, clock, horse.

Such names, or nouns, we commonly use in speaking of *any* man, *any* town, stove, horse, etc. They are therefore called **Common Nouns**.

A common noun should not begin with a capital.

| | | |
|------------------------|---|---------------|
| The two kinds of nouns | } | Common Nouns. |
| | | Proper Nouns. |





Nouns.

HOW TO WRITE NOUNS THAT MEAN MORE THAN ONE.

Names sometimes denote but one, but we often need to use them to denote more than one; as boy, boys; fly, flies; church, churches.

When nouns denote but one person, place or thing, they are called **Singular Nouns**; when more than one, **Plural Nouns**.

The plural of most nouns is formed by simply adding **s** to the singular.

Example:—Bird, birds; rock, rocks. Write the plural forms of the following nouns:

Flower, hour, paper, rule, quart, tree, week, book, chair, pailful.

To make some nouns sound right we must add **es** to the singular to form the plural; as dress, dresses; watch, watches. Write the plural forms of the following nouns:

Porch, wish, fox, cargo, peach, brush, box, tomato, match, grass, tax, potato.

Some names ending in *y* (not *ey*), change the *y* to *i*, and add *es* to form their plurals; as fly, flies; family, families; city, cities.

Some nouns ending in *f* or *fe*, change the *f* or *fe* to *ves*; as wolf, wolves; calf, calves; knife, knives; life, lives.

Letters and figures add the *apostrophe* (') and *s* to form the plural; as, 3, 3's; 8, 8's. Dot your *i*'s and cross your *t*'s.

HOW TO WRITE NOUNS THAT DENOTE OWNERSHIP OR POSSESSION.

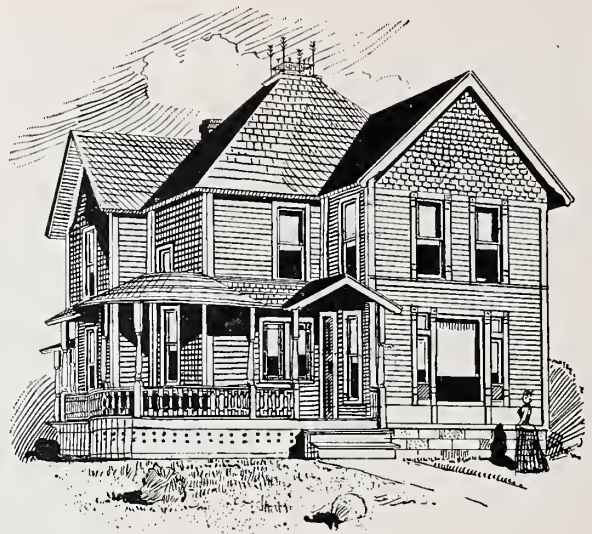
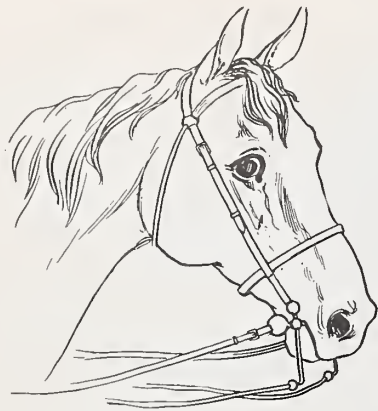
We may say, John has a hat that cost a dollar; or we may say, John's hat cost a dollar.

What change has been made in the noun "John"? We have simply added to it the *apostrophe* and *s*. That is the way to make a *singular* noun denote possession. Examples:—The boy's hat, a girl's fan, a mother's darling.

The *apostrophe* and *s* is also added to *plural* nouns not ending in *s* to make their possessive form; as, men's clothing; children's shoes.

Plural names that end in *s* add the *apostrophe* only; as boys' hats, ladies' gloves; parents' cares.

RULE. The possessive form of singular nouns and of plural nouns not ending in *s*, is formed by adding the *apostrophe* (') and *s*; but to plural nouns ending in *s* the *apostrophe* only is added.



Pronouns.

We may say, Clara lost *her* pencil; The men did *their* work. This is more elegant language than the awkward expressions, Clara lost *Clara's* pencil, or The men did the *men's* work.

There are a number of little words that take the place of nouns in this way and mean the same things as the nouns. These words are called **Pronouns**.

DEFINITION.—A PRONOUN IS A WORD USED FOR A NOUN.

Pronouns are used like nouns—sometimes as the subject of the sentence, and sometimes in the predicate after the verb; as, It is the same book I had yesterday; It is he; You and she saw the balloon, but he was gone to the city.

Some pronouns are used for the names of males, some for the names of females, and some for the names of things. Like nouns, some are singular in form and some are plural. Here is a list of most of the pronouns:

| For names of Males, singular. | For names of Females, plural. | For names of Things, singular. | For all names Plural. |
|---------------------------------------|---|-----------------------------------|--|
| I, he, his, him, himself, | I, she, her, hers, herself, | I, it, its, itself, | we, us, you, yours, they, theirs, them, themselves. |

Other pronouns: who, whose, whom; which, what, that, etc.

Caution.—Never use both the noun and the pronoun as a subject; as, Charles, *he* laughed. Fannie, *she* told me.

Write from memory the list of the pronouns on the blackboard.

Verbs.

A large class of words denote action; as, Birds *fly*; Trees *grow*; John *saws* wood.

In these sentences “fly,” “grow,” and “saws,” denote *action* and *assert* something of the subject.

Words that denote action are very important and are called **Verbs**.

A few verbs denote *state*, or condition, of the subject; as, The child *sleeps*. The dog *lies* on the rug. The man *stood* on the platform.

There are a few other verbs that denote *being*, or existence only; as, God *is* everywhere. There *are* vast oceans. I *shall be* at the social.

In each example given the verb *asserts* something of the subject. No sentence can be made without at least one verb. The verb is the principal word in the predicate of every sentence.

DEFINITION.—A VERB IS A WORD THAT ASSERTS ACTION, STATE, OR BEING OF THE SUBJECT.

S or **es** added to a *noun* makes it *plural*; but a *verb* with **s** or **es** added is *singular*.

William *plays*. The boys *play*. The engine *pushes*. The engines *push*.

Write ten sentences on the blackboard and draw a line under each verb.



HOW TO USE VERBS WITH NOUNS AND PRONOUNS.

Is and Are, Was and Were.

Use **IS** and **WAS** with singular subjects.

Fred is in the garden.
This paper is smooth.
The lake was frozen.
Harry was a jolly boy.

Use **ARE** and **WERE** with plural subjects.

Bees are busy workers.
Some people are always idle.
James and Rose were at school.
Three pailfulls of water were used.

Has and Have.

Use **HAS** with a singular subject.

Carrie has been at her aunts.
This has been a hot day.
That tree has a load of apples.
Mr. Fuller has gone from home.

Use **HAVE** with a plural subject.

Twenty dollars have been donated.
Ducks have three webbed toes.
Alice and Edith have read Robinson Crusoe.
The wheels have each thirty spokes.

Write on the blackboard twenty sentences using the verbs given above.

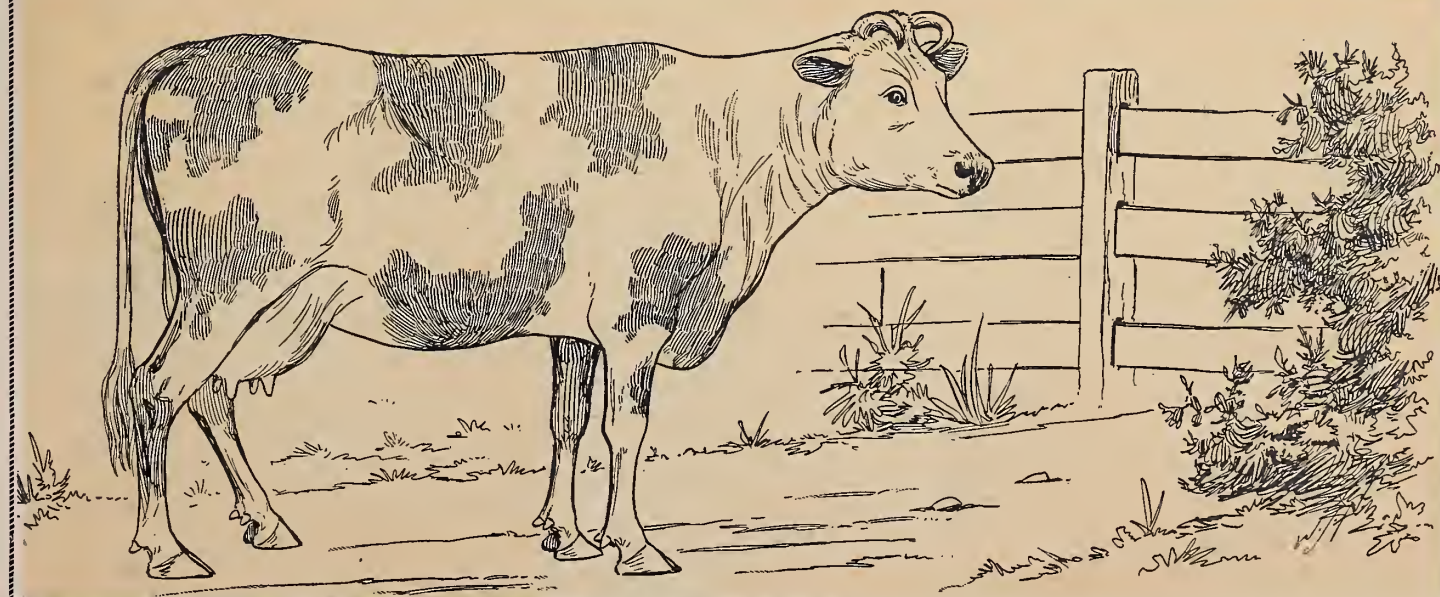
Objects of Verbs.

With some verbs the sense is not complete unless a noun or pronoun is used after them; as, Men build *ships*; Arthur made a *kite*; Florence saw *her* this morning.

The sense in these sentences would be incomplete without the words, "ships," "kite," "her."

When a noun or pronoun *which does not mean the same person or thing as the subject* is used after the verb, it is called the *object* of the verb. Thus "ships" is the object of the verb "build;" "kite" is the object of "make;" and "her" is the object of "saw."

Write on the blackboard twenty sentences in which the verbs have objects.



HOW TO USE PRONOUNS WITH VERBS.

USE as **subjects**: I, we, you, she, he, it, they, who.

USE as **objects**: me, us, you, her, him, them, whom.

Examples:—

She and I were listening; not, Her and me were listening.

Whom did you see? not, Who did you see?

Write ten sentences on the blackboard, using the pronouns given above correctly.

Are, were and *have* are plural forms of verbs, and hence should have plural subjects; as,

We are learning to speak correctly.

They have two wings and many eyes.

You were in the house.

Note.—The pronoun *you* has no singular form; therefore, *you are, you were, are* the correct uses, even when speaking to only one person. Never say, *you was*.

A noun and a pronoun in the same sentence, meaning the same thing, must be of the same number.

Each *soldier* carried *his* gun. All the *soldiers* carried *their* guns.

When one pronoun refers to two nouns in the same sentence, the pronoun must be plural.

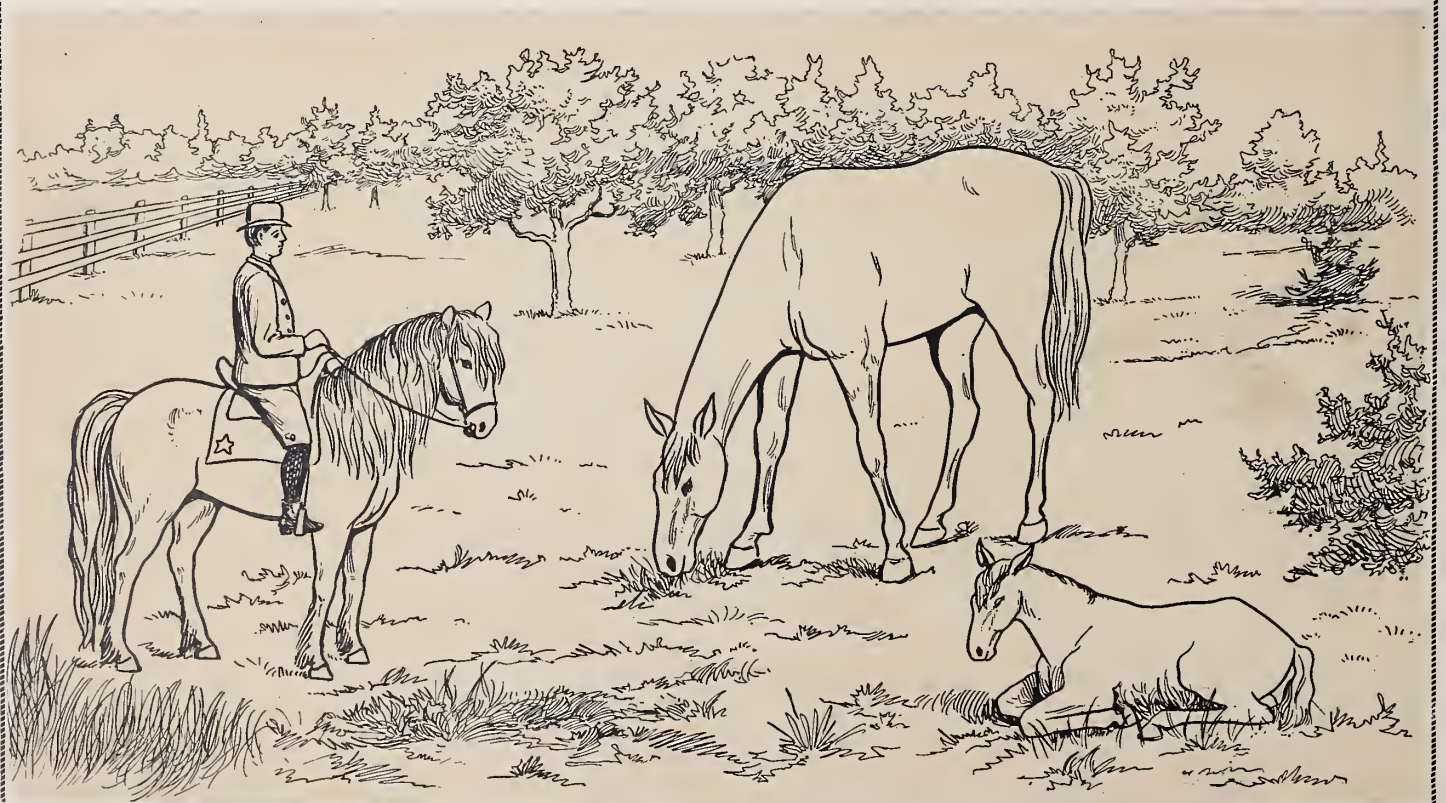
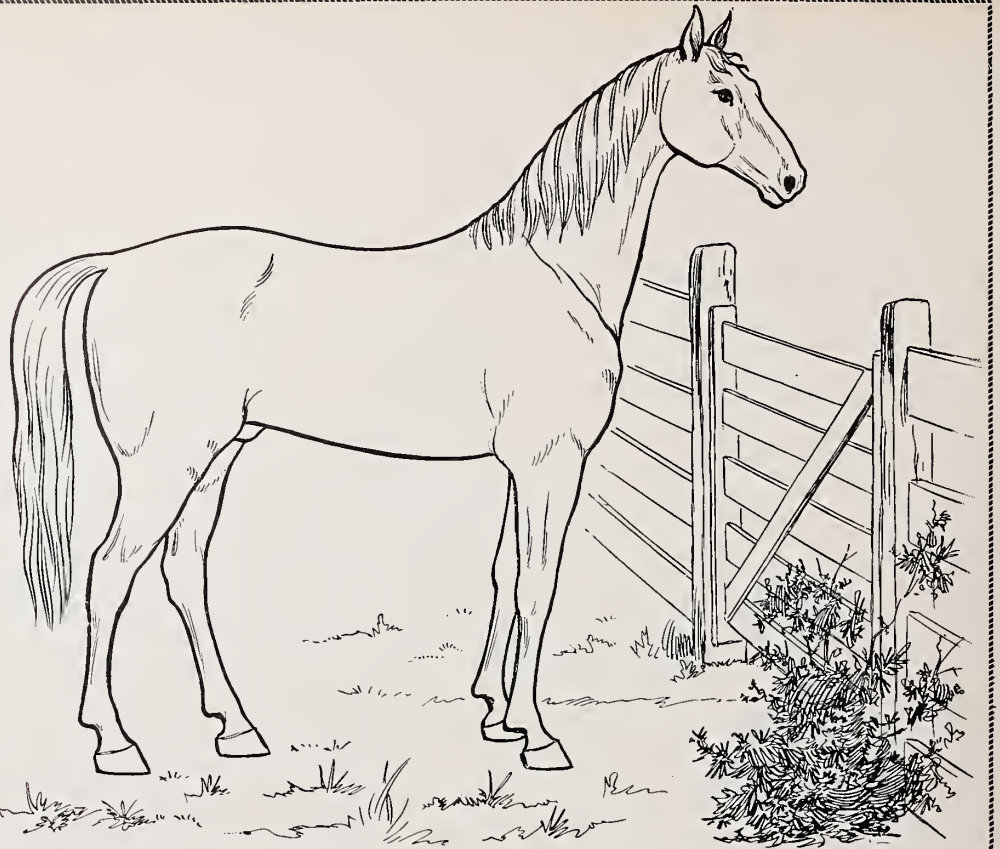
James and *Charles* must study *their* lessons.

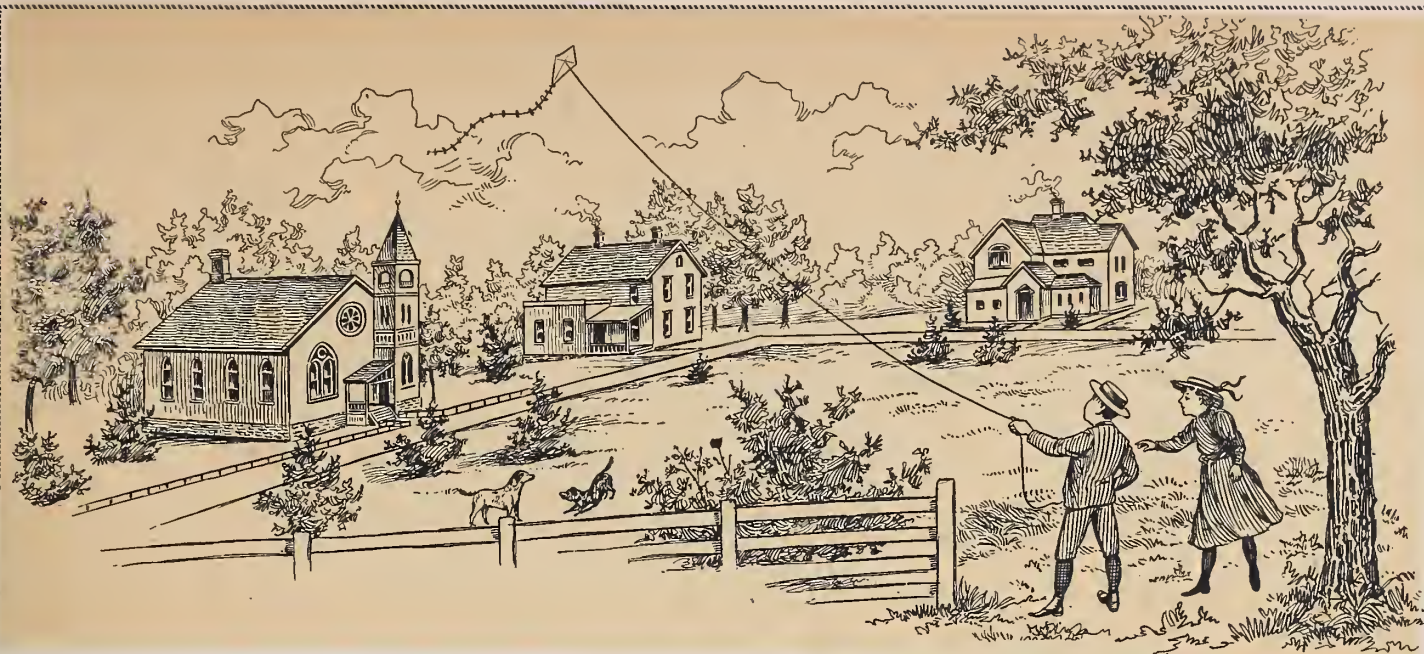
Pronouns used after *am, is, are, and was*, should have the same forms as *subjects*, not the forms of those used as *objects*.

Examples:—

It is I. It was she. It was he. I am he of whom you spoke. Grace and Rose are they who went.

Write on the blackboard many sentences, using pronouns correctly.





Adjectives.

These are *sweet* apples.

There are *large* oceans.

Wild animals are found in Africa.

Mrs. Simpson has *many nice* peaches.

Ten men stood on the platform.

What is said of the apples? They are *sweet*. "Sweet" describes the apples. So "large" describes "oceans," "wild" describes "animals" and "nice" describes "peaches."

In a similar way "ten" describes or limits "men," and "many" limits "peaches."

DEFINITION:—WORDS USED TO DESCRIBE OR TO LIMIT NOUNS ARE CALLED ADJECTIVES.

Select the adjectives in the letter on page 19, and write them on the blackboard.

HOW TO USE ADJECTIVES.

St. Louis is a *large* city.

Chicago is a *larger* city.

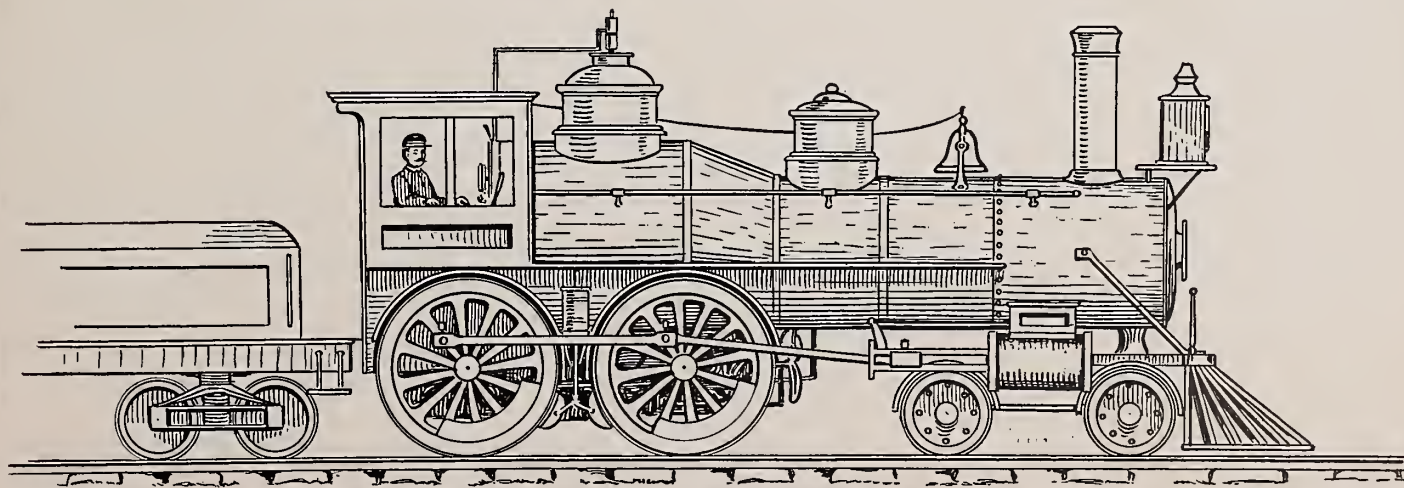
London is the *largest* city.

Here "*large*," "*larger*" and "*largest*" express different *degrees* of size. Most adjectives may express the different degrees of distance, time, size, quality, etc., by adding to them *er* and *est*. Some adjectives add *more* and *most*, and a few change the word entirely to express the degrees. Beautiful, more beautiful, most beautiful; good, better, best.

Cautions:—In speaking of only two persons or things, it is wrong to use the ending *est*, or the words *most*, *best*, *least*, etc., as, the one can only be better, higher, nicer, etc., than the other.

When three or more persons or things are compared, use *est*, *most*, etc.; where only two are compared use *er*, *more*, etc.

Place adjectives as close to their nouns as possible.





How to Use Verbs.

Waters freeze,

Water froze,

Water has frozen,

Here are three forms of the verb freeze, expressing difference of time. Nearly all verbs undergo changes of form to denote different times. These forms are called the **Tenses** of the verb. The most important tenses for us to know are:

The **Present Tense**, denoting present time.

The **Past Tense**, denoting past time.

The **Perfect Participle**, denoting completed action.

We should always use one of the verbs, *is, are, was, were, have, has, or had*, before the **PERFECT PARTICIPLE**; as, I eat, I ate, I *have* eaten.

The past tense and the perfect participle of most verbs end in *d* or *ed*, and such verbs are seldom misused. But many verbs form the tenses very irregularly. Below is a list of some of the most common irregular verbs:

| Present tense. | Past tense. | Perfect participle. | Present tense. | Past tense. | Perfect participle. |
|----------------|-------------|---------------------|----------------|-------------|---------------------|
| begin, | began, | begun, | give, | gave, | given, |
| choose, | chose, | chosen, | go, | went, | gone, |
| come, | came, | come, | know, | knew, | known. |
| do, | did, | done, | lie, | lay, | lain, |
| eat, | ate, | eaten, | lay, | lay, | laid, |
| freeze, | froze, | frozen, | sit, | sat, | sat, |
| write, | wrote, | written, | take, | took, | taken, |

The complete grammars give the full list.

Caution.—Do not use *is, are, was, were, have, has* or *had* with the present or past forms.

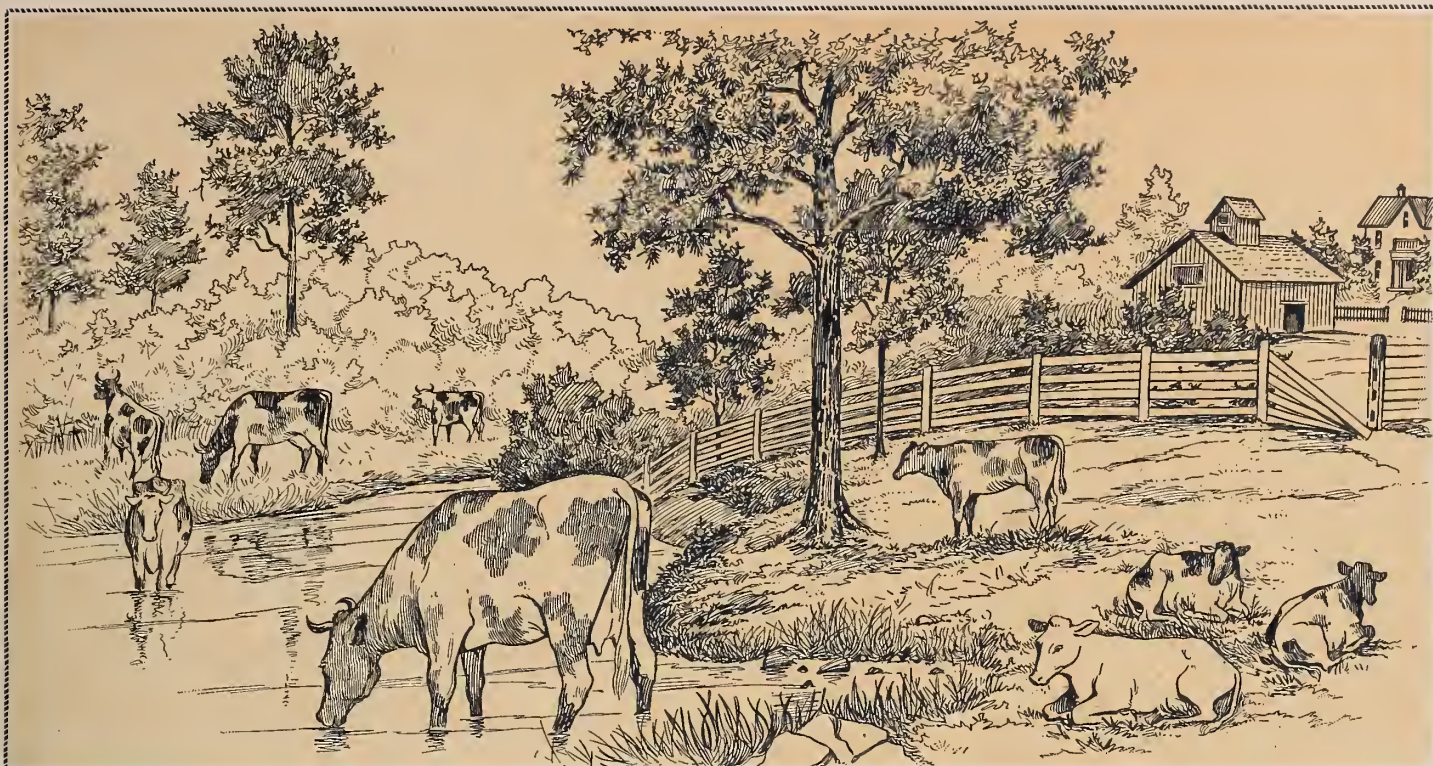
Correct Use.

We *have begun*.
John *has broken* his knife.
Alice *has come* home.
They *have done* the work.
We *have eaten* dinner.
The girls *were hidden*.
I *had written* two pages.

Incorrect Use.

We *have began*.
John *has broke* his knife.
Alice *has came* home.
They *have did* the work.
We *have eat* (or *ate*) dinner.
The girls *were hid*.
I *had wrote* two pages.





How to Use **Shall** and **Will**.

I shall return soon. We shall be glad to see you. Shall I go to Merton's store?

Use shall with *I* and *we* to express a future event or to ask a question.

You *will* see the mountains. He *will* hear the band. They *will* form an association. She *will* go soon. Charles *will* mail the letter.

Use will with other pronouns than *I* and *we*, and with proper nouns to express a future event. When **shall** is used with other pronouns than *I* and *we* or with proper nouns it expresses determination.

He *shall* carry that load. You *shall* go to the mill. Edith and James *shall* stay at home.

When **will** is used with *I* or *we*, it expresses determination.

I *will* not carry that load. I *will* go by the mill to the depot.

Correct Use.

Incorrect Use.

I shall drown for no one will help me out.

I will drown for no one shall help me out.

Should and **would** are used in the same manner as *shall* and *will*.

Examples:—

Future Events.

I *should* be pleased to meet him. We *should* like to go with you if there is room. You *would* be delighted with the scenery. She *would* not go if she knew that. Charles *would* like to buy that property.

Determination.

I *would* not buy that property. We *would* be there if we could. You *should* not go if I could prevent it. Fred *should* be praised. She *should* return the umbrella at once. **Should** is often used correctly in the sense of **ought**.

May and **Can**.

May is used to express permission or probability. You *may* go to the park. Clara *may* go with you. It *may* rain before you return. The book *may* be on the mantel.

Can is used to express power or ability. Hugh *can* sail a boat. Trains *can* run very fast. Stella *can* write nicely. She *can* read well.

Write on the blackboard ten sentences using *shall* and *will* correctly, ten sentences using *should* and *would* correctly, and ten sentences using *may* and *can* correctly.

Sit and **Set**.

Sit does not require an object to complete its meaning. We can not *sit* anything. I *sit* in this chair. Yesterday I *sat* in the house. You *have sat* on a table like a tailor.

Set requires an object to complete its meaning. We can not *set* without *setting* some object. Fannie, *set* this chair in the parlor. She *set* the ink on the desk. We *have set* the table for a week.

Caution.—Do not use the verb *sit*, *sat*, *sat*, with an object, nor the verb *set*, *set*, *set*, without an object.

Lie and **Lay**.

Lie does not require an object to complete its meaning. We could not *lie* anything.

Note.—The past tense of *lie* is *lay*. (See page 26.) But when *lay* is used in the sense of *reclined* it can not have an object.

Cattle *lie* down at night. The dog *lay* on the porch yesterday. George *has lain* abed sick all day.

Lay requires an object to complete its meaning. You *may lay* a book on the desk. We *laid* our hats on the table last night. Ralph *has laid* papers on the table frequently.

Caution.—Do not use an object with the verb *lie*, *lay*, *lain*, and do not use the verb *lay*, *laid*, *laid*, without an object.

Write on the blackboard many sentences, using *sit* and *set*, *lie* and *lay*, correctly.



Rules for the Use of Capitals.

A capital letter should begin—

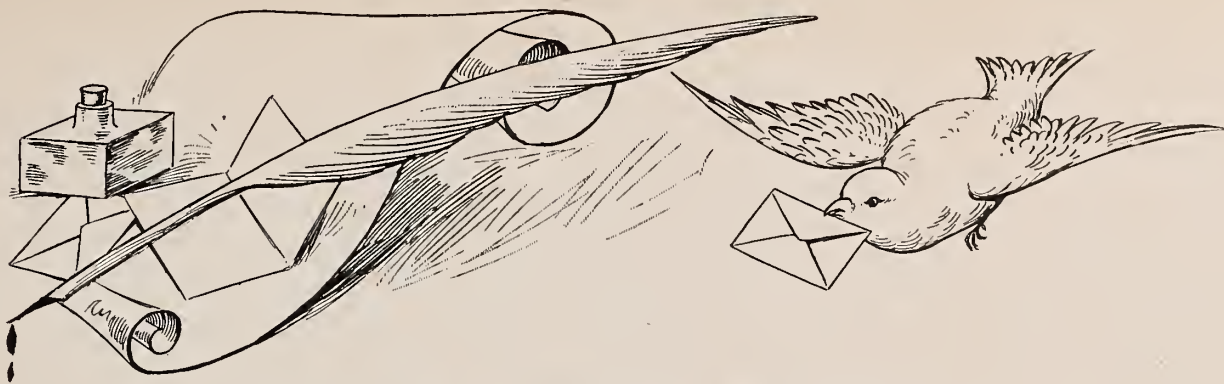
1. The first word of every sentence.
2. The first word of every line of poetry.
3. All proper nouns.
4. The principal words in the subject of every composition, essay and newspaper article.
5. The first word of every direct quotation.
6. All references to God.
7. All titles; as, Uncle, Aunt, Esquire, when used with the names of persons.
8. Every abbreviation; as, Mr., Miss., J. A. Thomas.
9. The days of the week and months of the year.
10. The words I and O should always be capitals.

Rules for Punctuation.

1. Use a period at the end of every declarative and imperative sentence.
2. Use a period after every abbreviation.
3. Use a period after the subject of a composition, an essay, or the title of a book or newspaper article.
4. Place an interrogation mark (?) at the end of every interrogative sentence.
5. Place the exclamation mark (!) after every exclamation.
6. Use the quotation marks (" ") to inclose all quotations of the *exact words* of others.
7. Use the comma to separate two or more adjectives used in succession to describe the same noun, unless *and* joins them; as, A tall, symmetrical tree stood in the yard. The work is educational, attractive and durable.
8. Use commas to separate from the rest of the sentence such expressions as *moreover*, *however*, *as a matter of course*, *as it were*, etc.
9. Use a semicolon (;) before *as* when it introduces an example, and place a comma after it.
10. Use a semicolon to separate the principal members of a long sentence, especially, if commas are required in the parts of the members.

Rules for Writing.

1. Write a medium sized, plain hand.
2. Make short sentences. At least, do not write three or four long ones in succession.
3. Do not use two adjectives in succession, meaning the same thing to describe the same noun; as, a tall, high tree.
4. Be careful to use the word that expresses the exact meaning you intend to convey.
5. Punctuate your sentences as you write them.
6. Look carefully over your writing to correct all errors in spelling and mistakes in the use of words.



How to Write Letters.

The *Place* and *Date* are called the **Heading**.

Examples:—

1. Chicago, Ill., June 23, 1895.
2. 836 Forrest St., Kansas City, Mo.
Feb. 14, 1892.

3. Iowa State University,
Iowa City, Ia., Sept. 20, 1894.
4. North Orange, N. J., Aug. 12, 1895.

The expression of respect or affection at the opening is the **Salutation**.

Examples.

For letters of friendship.

1. My dear Father,—
2. Dear Sister,—
3. Dear Frank,—
4. My dear Edith,—
5. Dear Aunt Harriet,—

For strangers.

1. Dear Sir:—
2. Sir:—
3. Gentlemen:—
4. Madam:—
5. Dear Madam:—

For business letters.

1. Messrs A. H. Andrews & Co.,
215 Wabash Ave., Chicago, Ill.
Gentlemen:—
2. Mr. T. E. Rogers,
Beloit, Kansas.
Dear Sir:—
3. The James Quinn Grocery Co.,
625 Jackson St., St. Louis, Mo.
Gentlemen:—

The closing words of a letter, including the signature, are called the **Conclusion**.

Examples.

For letters of friendship.

1. Your loving daughter,
Florence Randolph.
2. Most sincerely yours,
Edward Thornton.
3. Very respectfully yours,
Alice Morrell.
4. Affectionately yours,
Carrie Evans.

For business letters.

1. Very truly yours,
A. G. Glaser.
2. Yours respectfully,
James R. Smith.
3. Yours truly,
C. E. Wheeler.
4. Very respectfully yours,
M. W. Pierson & Co.

Business Letters.

Youths' Companion,
Boston, Mass.

741 Washington St., Memphis, Tenn.

Dec. 18, 1895.

Gentlemen:—Enclosed is a money order for One and $\frac{7}{8}$ Dollars for which please send to my address "The Youths' Companion" for one year, beginning with the holiday number.

Most respectfully yours,

Loren E. Price,

ADDRESS ON ENVELOPE.

STAMP.

Miss Florence Naughton,
324 Oakland St.,
Rochester,
New York.

Atlanta, Ga., May 25, 1893.

Messrs. Washburn & Crosby,
Minneapolis, Minn.

Gentlemen:—

Please ship to me here at once one car-load Superlative Flour at price and terms quoted 15th inst.

Yours truly,

Wayman Grocery Co.

Observe carefully the use of capitals, the exact and uniform use of the comma, period, colon and dash in the examples; and the relative positions of the *heading*, *salutation* and *conclusion* in the business letters. An example of a letter of friendship was given on a previous page. Practice in writing the heading, etc., of letters on the blackboard and on paper will be necessary to write them accurately and rapidly.

Geography.

Geography is a most delightful branch of study. It comprises a description of the whole earth's surface—the different races of people, the nations they have formed, how they live and what they do; the snow capped mountains and river gorges; the fertile plains and beautiful lakes; the vast expanse of the oceans with their wonderful currents and delightful coral islands—all these subjects, and very many more can be studied in the complete geographies.



THE OCEAN.

ISLAND.

PENINSULA.

CAPE.

ISTHMUS.

MOUNTAINS.

VOLCANO.

LAKE.

SCHOOL HOUSE.

BAY.

PORT.

PLAIN.

RIVER.

RAILROAD.

Definitions.

Geography is a description of the earth's surface—its waters, lands, climates, people, animals and products.

WATERS.—The waters are the Oceans, Seas, Gulfs, Bays, Lakes, Straits, Rivers, Creeks and Springs.

OCEANS are the largest bodies of water, and cover nearly three-fourths of the earth's surface.

SEAS are next in size to oceans. Their waters are salt like those of the oceans.

GULFS and **BAYS** are arms of the oceans and seas extending into the land, making irregular coast lines, and often affording quiet harbors for ships. Their waters are salt.

LAKES are bodies of water lying over depressions in the land areas. Small lakes are called *ponds*. When lakes have no outlet to the ocean their water, are salt like that of the ocean.

STRAITS are narrow channels which connect two larger bodies of water.

RIVERS are streams flowing down through their

channels in the land to empty their waters into the sea. Some rivers flow into larger rivers, or into lakes.

CREEKS are very small streams.

SPRINGS.—All the waters of the great land areas come from rains, which fill the low places and form lakes; or, sinking into the earth, form springs, which help to make the creeks and rivers.

THE EARTH AND MOON.

(See next page.) You have often looked at the moon at night in the eastern sky when it was full and bright. What a beautiful object it is; far, far out in space! It is round like an orange; so is the earth. Nothing seems to hold the moon in its place; neither has the earth any visible support. If you observe the moon for several evenings in succession, you will see that each evening it is farther to the east than it was the evening before at the same hour. The moon moves around the earth from west to east once in about twenty-eight days; and in the same direction the earth revolves around the sun once a year, pulling the moon with it.



THE EARTH IN SPACE.

THE MOON. SATURN.

Place a lamp upon a table to represent the sun, and run a wire through an apple to represent the earth. Now hold up the apple by the wire and see how the light falls on one side of it while the other side is in the shade. Move slowly around the table; and as you go, revolve the wire thus turning all sides of the apple toward the light many times, while you move once around the lamp. This experiment shows how we have so many days in a year.

Definitions.

The names applied to the lands are Grand Divisions, Islands, Peninsulas, Isthmuses, Capes, Mountains, Plateaus, Hills, Plains and Valleys.

GRAND DIVISIONS are the largest land areas.

ISLANDS are portions of land surrounded by water.

PENINSULAS are land areas extending into, and nearly surrounded by water.

ISTHMUSES are small necks of land joining two larger areas.

CAPES are points of land extending into the water.

MOUNTAINS are great elevations of land more than 1,000 feet above the sea.

PLATEAUS are high elevated lands between mountain chains.

HILLS are small elevations of land.

PLAINS are comparatively level tracts of land.

VALLEYS are low lands between hills or mountains.

Western Hemisphere.



REFERENCES TO NUMBERS.

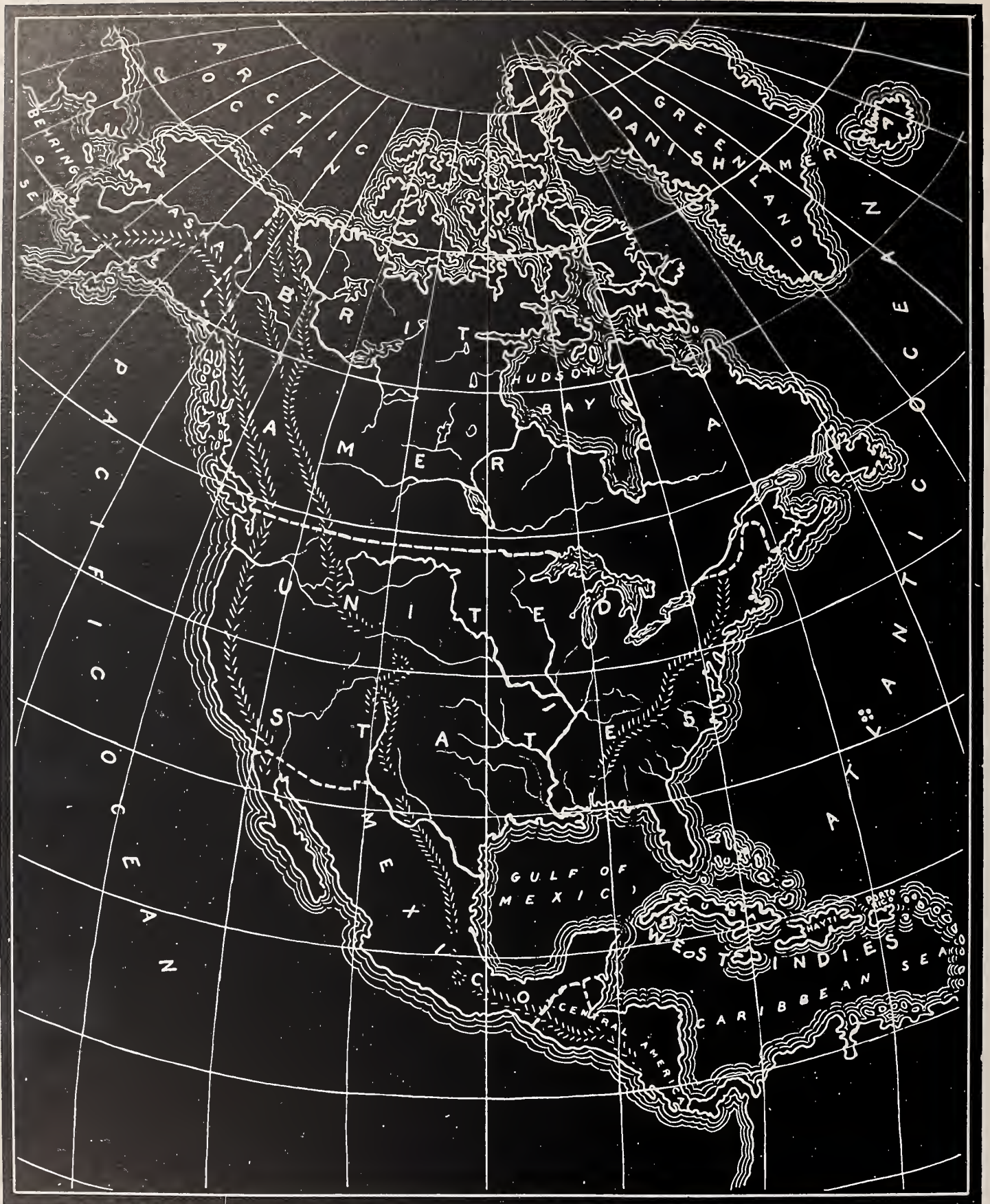
| | | | |
|---------------------------|------------------------------|-------------------------------|----------------------------|
| 1. Sorata.....24,800 | 7. Cayambe.....19,535 | 14. Fuego.....13,800 | 21. Mt. Egmont.....8,850 |
| 2. Sahama.....23,000 | 8. Chimborazo.....21,420 | 15. Pikes Peak.....14,147 | 22. " Kilauea.....6,000 |
| 3. Aconcagua.....22,422 | 9. Arequipa.....20,320 | 16. Mt. Ranier.....14,444 | 23. " Jorullo.....4,265 |
| 4. Illimani.....21,145 | 10. Popocatepetl.....17,717 | 17. Fremont's Peak.....13,570 | 24. " Mansfield.....4,420 |
| 5. Chiquibamba.....21,000 | 11. Mt. St. Elias.....17,900 | 19. Mt. Hood.....11,225 | 25. " Mitchell.....6,582 |
| 6. Tapungata.....20,270 | 13. Angua.....13,500 | 20. " St. Helena.....9,750 | 26. " Washington.....6,298 |

Eastern Hemisphere.



REFERENCES TO NUMBERS.

- | | | | |
|-----------------------------|-----------------------------|-----------------------------|-------------------------------|
| 1. Mt. Everest.....29,062 | 8. Mt. Fujiyama15,000 | 15. Mt. Ophir.....13,842 | 23. Mt. Kosciusko....6,500 |
| 2. " Kunchinginga...28,156 | 9. " Elburz.....18,572 | 16. " Cenis11,460 | 24. Western Ghants Mts..6,000 |
| 3. " Dhawalgari.....26,826 | 10. " Kilima Njaro...20,065 | 17. " Teneriffe.12,180 | 27. Mt. Cat4,240 |
| 4. " Chamalari.....23,944 | 11. " Kasheck16,550 | 19. Snow Mts.....10,000 | 28. Ben Nevis.....4,406 |
| 5. Hindoo Koosh.....20,000 | 12. " Blanc15,780 | 20. Mt. Hermon.....10,000 | 29. Ben Lomond3,192 |
| 6. Mt. Demavend18,500 | 13. " Mauna Loa....14,900 | 21. " Sinai.....9,304 | 30. Mt. Vesuvius.....3,948 |
| 7. " Ararat.....16,960 | 14. " Owen Stanley..13,205 | | |



Blackboard Work.

Draw the map on the blackboard many times, observing only the general form and relative position of the principal points. Note that the mainlands of Alaska and Greenland extend south nearly to the same line; that Florida and Lower California are in the same latitude; that Central America is south of the Great Lakes; that the mouth of the Mississippi River and Florida are south of Hudson Bay. Observe that the Caribbean Sea is larger than the Gulf of Mexico; Labrador is larger than Alaska, and Lower California larger than Florida. Many other points may be noted.

Finally, draw the map many times entirely from memory.



Blackboard Work.

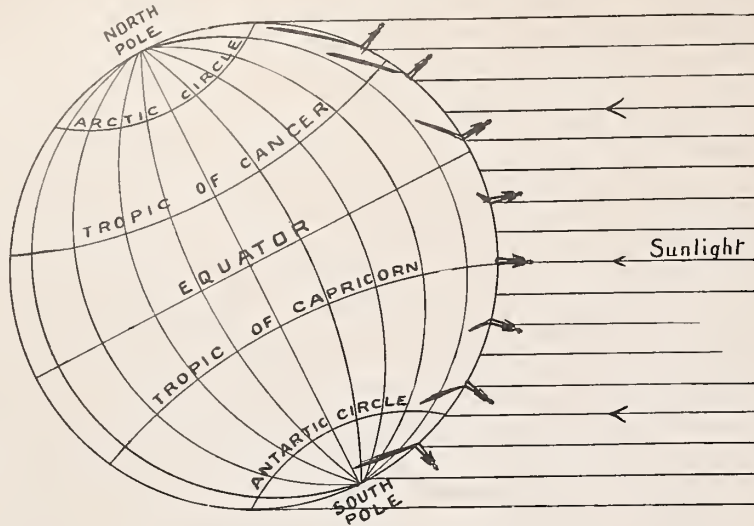
South America is noted for its even coast line, being less indented by gulfs and bays than any other continent. It has no lakes of any importance, but its river systems are very complete.

Note its triangular form.

South America is constantly growing in commercial importance to us. We should know all its countries.

Draw, first, the outline of the map several times, then try making the boundary lines of the countries.

The Circles.



There are, of course, no lines drawn on the earth's surface. We only imagine them for convenience and draw them on maps to indicate locations. All the principal lines on a globe, except the meridians, are parallel to the equator. The names of the circles are given in the illustration at the top of this page.

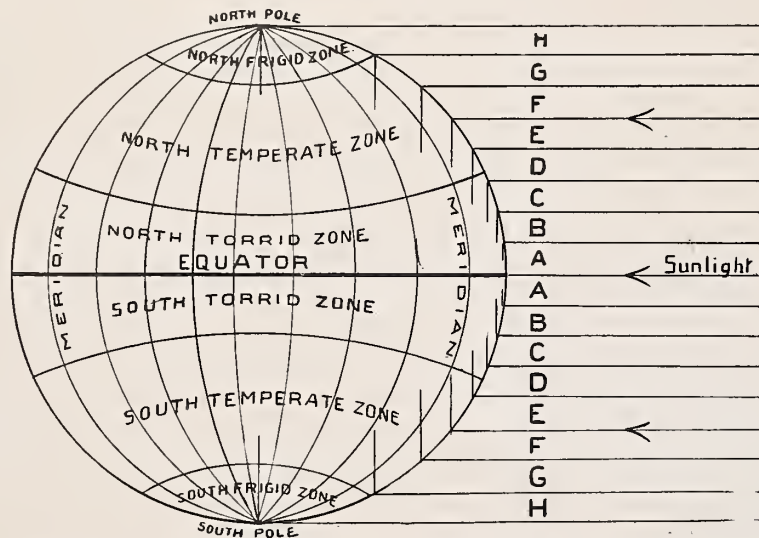
The **Arctic Circle** is $23\frac{1}{2}$ degrees from the north pole, and marks the limits of the sun's light at the time of the longest and shortest days.

The **Tropics of Cancer and Capricorn** mark the farthest distance north and south of the equator at which the sun's light falls vertically upon the earth. About June 20 the sun's rays fall vertically at any point on the Tropic of Cancer at mid-day at that point. We then have our longest days and the sun is high in the sky. About December 20 the sun's rays fall vertical at any place on the Tropic of Capricorn at mid-day at that place. We then have our shortest days and the sun is far to the south and low in the sky. But this *apparent* shifting of the sun to the south and back again to the north is wholly due to the movement of the earth around the sun.

The Tropics of Cancer and Capricorn are each $23\frac{1}{2}$ degrees from the equator.

The **Antarctic Circle** is $23\frac{1}{2}$ degrees from the south pole and marks the distance the sunlight reaches beyond when it is winter at the north, and the distance it falls short of reaching the south pole when we have summer at the north.

The **Meridians** extend only from pole to pole. There are 360 of them, one for every degree on the equator, but they are never all marked on the maps.



The Zones.

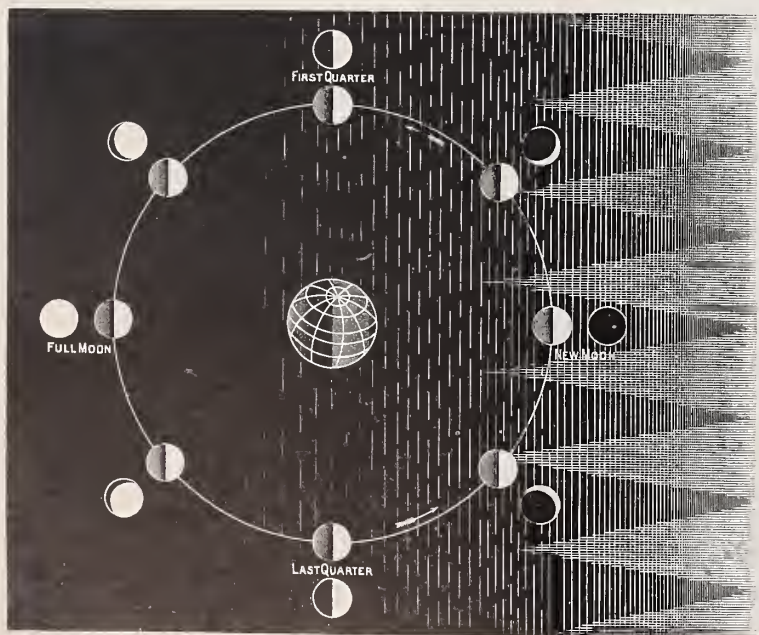
The circles described above divide the earth's surface into five great divisions or belts which are called **Zones**. These are named in the second illustration on this page.

Widths of the Zones. Since the Arctic and Antarctic circles are $23\frac{1}{2}$ degrees from the poles and extend around the poles it follows that the Frigid Zones must be 47 degrees wide. The Torrid Zone is $23\frac{1}{2}$ degrees on each side of the equator and hence is also 47 degrees wide. The North and the South Temperate Zones occupy the remaining space and are each 43 degrees wide.

Heat and Shadows.

The second illustration represents the sun's rays coming to the earth from the right. The spaces between the lines are equal; but observe that the area heated by the rays coming in the spaces A and B is not nearly so large as that of the spaces heated by the rays at G and H. Hence the smaller space at A A. must be heated more in the year than the larger spaces at G and H.

It is plain from the first illustration that shadows of people in the southern hemisphere fall to the south of their feet while here at the north our shadows fall to the north of our feet.

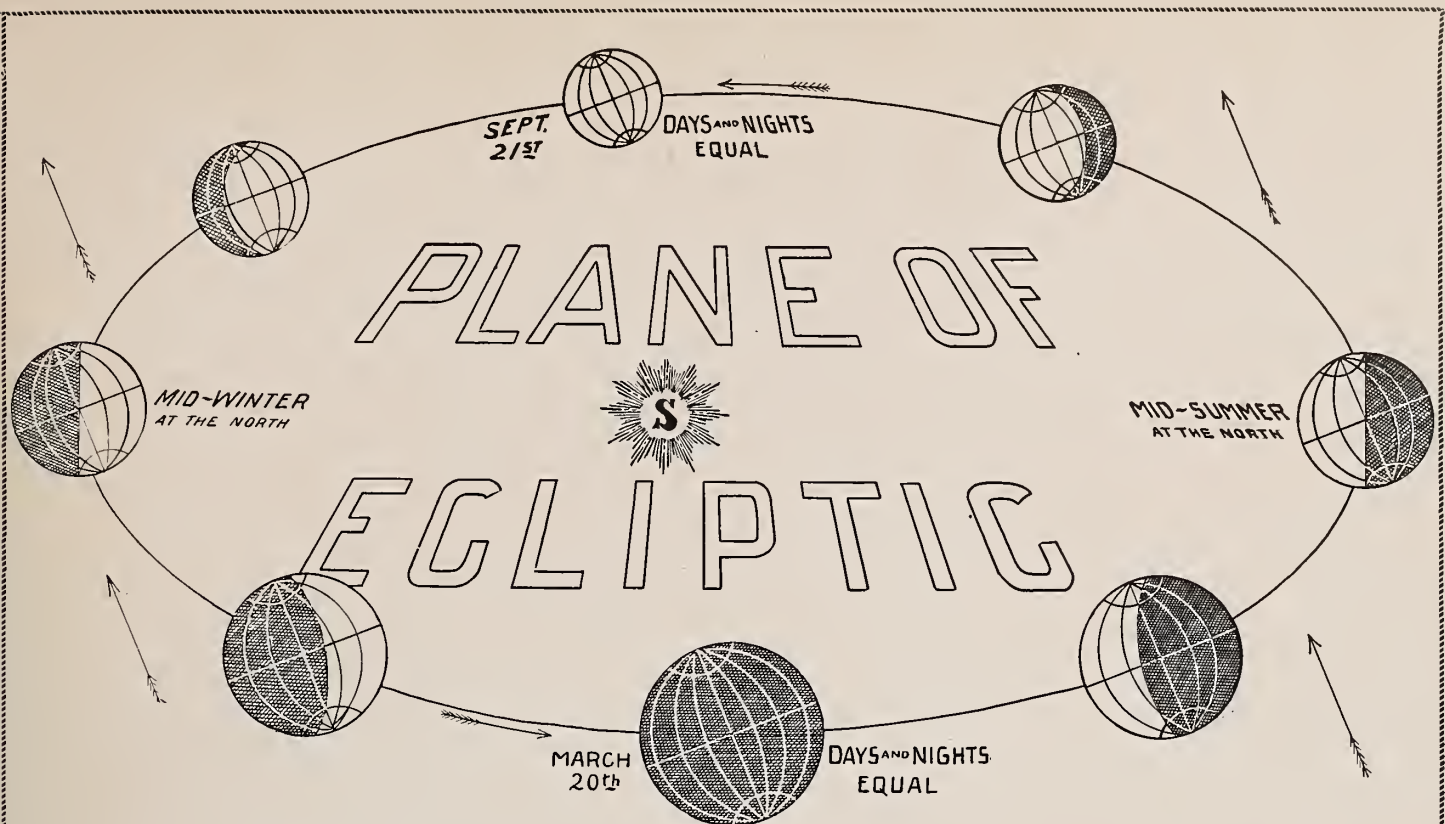


Phases of the Moon.

The illustration at the bottom of this page represents the moon in various positions with the earth at the center. The inner circle shows the moon as it really is—half of its surface is lighted by the sun at all times. The outer circle represents it as we see it from the earth.

The moon has no light of its own. We can see it only as the sun's light falls on it. When the moon is straight west at sunset, we cannot see any of the lighted side; but as it rises higher, evening after evening, we see first some, then more of the lighted side. Finally it reaches the eastern sky at sunset, then we can see the whole lighted face, big, round and bright.

If we want to see the moon decrease, we must be up late at night and early in the morning.



The Change of Seasons.

THE above cut represents the earth in various positions on its path or *orbit* around the sun (**S**). If a great sheet of paper or glass were passed through the center of the earth and through the center of the sun, this path or orbit would everywhere lie in such a sheet, and the sheet would be the Plane of the earth's orbit, or as it is called, the **Plane of the Ecliptic**. The *axis* of the earth is the line passing through its center from pole to pole.

On or about March 20, the days and nights are equal, because the earth is at that part of its orbit where the sunlight falls perpendicularly upon the equator. But when it moves onward the light does not fall perpendicularly upon the equator, but at places north of it; the light then reaches beyond the north pole, but does not quite reach the south pole. This causes a long night at the south pole, and a long day at the north pole. In midsummer, about June 21, the sunlight reaches $23\frac{1}{2}$ degrees beyond the north pole, and falls $23\frac{1}{2}$ degrees short of reaching the south pole. It is now mid-summer at the north and mid-winter at the south. As the earth moves on, the light again approaches the south pole and the darkness approaches the north pole, till, about Sept. 21, the days and nights are again equal. After this, the light shifts *from* the north pole, and *beyond* the south pole, producing winter at the north, and summer at the south. Thus the different seasons are brought about every year.

ESSENTIAL CONDITIONS TO THE CHANGE OF SEASONS.

1. The earth must travel around the sun.
2. The earth must revolve on its axis very often.
3. The axis must be inclined to the orbit.
4. The axis must always point in the same direction.

AREA, POPULATION, AND VALUE OF EXPORTS OF THE CONTINENTS.

| | AREA, SQUARE MILES. | POPULATION. | VALUE OF EXPORTS TO THE UNITED STATES. |
|-----------------------------|---------------------|-------------|--|
| Asia..... | 17,210,000 | 834,707,000 | \$39,500,000 |
| Africa | 11,545,000 | 205,700,000 | |
| North America | 9,308,000 | 75,500,000 | 15,425,000 |
| South America | 6,855,000 | 28,150,000 | 65,660,000 |
| Europe | 3,785,000 | 315,929,000 | 336,950,000 |
| Australia and Oceanica..... | 3,460,000 | 4,060,000 | 2,750,000 |

PRODUCTS OF THE CONTINENTS.

Europe.

Vegetation.—Forest trees, the olive, almond, orange, grape, cork-bark tree; wheat, oats, barley, rye, corn, flax, hemp, and many fruits.

Animals.—Reindeer, wolf, fox, bear, wild boar, panther, buffalo, chamois, ibex.

Minerals.—Coal, iron, lead, tin, zinc, copper, platinum, salt.

Manufactures.—Iron, steel, and brass tools of all kinds; machinery, utensils, jewelry; silk, cotton, linen, and woolen goods in wonderful variety; leather, rope, cane, bamboo and rubber goods of all kinds; wines and liquors; iron-stone, china, porcelain and glass ware; paper, ships, etc., etc.

Asia and East Indies.

Vegetation.—Aloe, ebony, bamboo, sandal-wood, banana, date, fig, olive, tamarind, camphor tree; cocoa, cinnamon, clove, nutmeg, and other spice trees; opium, tea, coffee, indigo; wheat, barley, oats, rice, rye, corn, cotton, tobacco, and garden vegetables.

Minerals.—Coal, iron, lead, tin, zinc, copper, platinum, gold, silver; diamonds, rubies, and other precious stones.

Animals.—The tiger, elephant, rhinoceros, tapir, monkey, ape, baboon, bear, fox, wolf, pangolin, ant-eater, hyena, seal, buffalo, gazelle, musk deer, crocodile, and many poisonous serpents.

Manufactures.—Shawls, carpets, rugs, silk goods, toys, leather, sugar, indigo, opium, camphor, porcelain, cane and bamboo goods.

North America and West Indies.

Vegetation.—Timber, dye-woods, vanilla, coffee, banana, palm, cocoa, orange, lemon, olive, rubber tree, mahogany, indigo, rosewood, cactus, cane, bamboo, wheat, corn, oats, rye, barley, rice, sugar cane, cotton, tobacco, hay, potatoes, hemp, flax, and garden vegetables of every kind.

Minerals.—Iron, coal, copper, tin, lead, zinc, gold, silver, diamonds, salt, gypsum.

Animals.—Bison, grizzly and black bear, puma (called the American panther), deer, elk, antelope, big horn, mountain goat, prairie dog, fox, wolf, mink, otter, beaver, skunk, armadillo, ant-eater, alligator, seal, cochineal, birds in great variety, and many poisonous serpents.

Manufactures.—Iron, steel, brass and bronze goods of every description; machinery, farm implements, edged tools, utensils, watches, clocks, jewelry; glass, iron-stone, porcelain and wooden ware; silk, cotton, linen and woolen goods of all kinds; rubber and leather goods. Nearly every article made in the world is manufactured in the United States.

South America.

Vegetation.—Coffee, India rubber tree, cinchona (peruvian bark tree), palm tree, rosewood, dye woods, mahogany, cocoanut, orange, lemon, banana, tapioca, indigo, sugar cane, pineapple, many species of cacti; wheat, corn, oats, rice, rye, barley, garden vegetables.

Minerals.—Gold, silver, coal, iron, copper, lead, zinc, saltpetre.

Animals.—Llama, alpaca, puma, jaguar, monkey, ant-eater, armadillo, boa, condor, rhea, penguin; humming birds and insects of wonderful variety and beauty. Horses, cattle and sheep were introduced into America from Europe and now range the plains of South America in vast herds.

Manufactures.—The manufactures of South America are very limited. Nearly all the products are exported as raw material to Europe and the United States, to be manufactured into useful goods.

Africa.

Vegetation.—Most of the vegetation of Africa lies in the middle belt of the continent, where it is very dense though not nearly equal to that of South America. The oil palm, date palm, acacia (gum tree), fig, olive, orange, almond, lemon, bananas, spices; rice and other grains are raised in small quantities.

Minerals.—Gold, diamonds, and precious stones. The mines of Africa are not opened to any great extent. Its mineral wealth is uncertain.

Animals.—Africa is noted for the number and size of its wild animals. The elephant, giraffe, hippopotamus, rhinoceros, lion, leopard, hyena, gorilla, chimpanze, and many species of monkeys; the ostrich, ibis, camel, gnu, springbok, antelope.

Manufactures.—The manufactures are very limited. Leather, gum-arabic, olive oil, a few fabrics, and ivory articles.

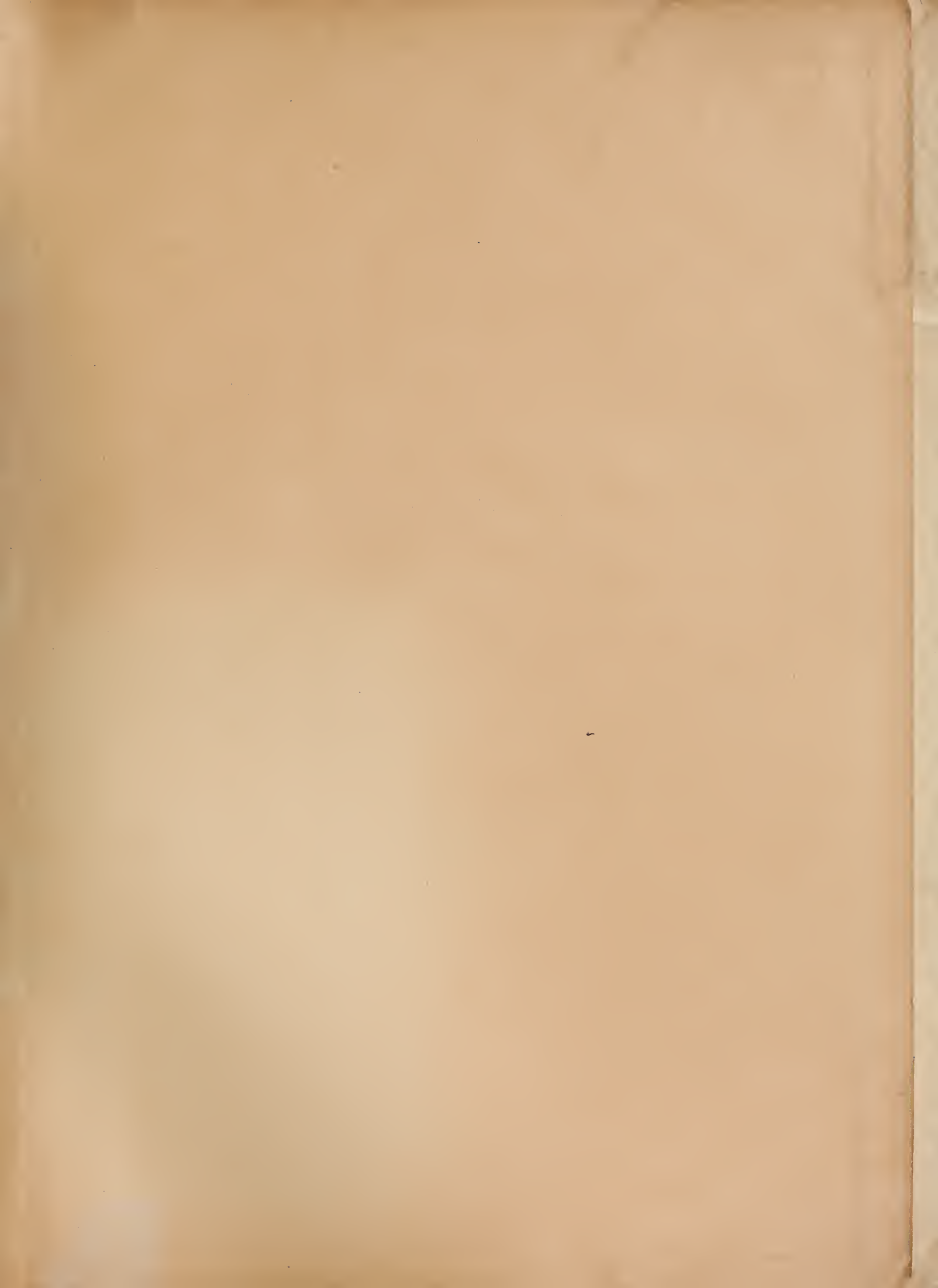
Australia.

Vegetation.—Australia has fewer dense forests than any other continent. The trees are mostly evergreen and some are noted as being the tallest in the world. Coffee, indigo, wheat, cotton.

Minerals.—Gold, silver, tin, copper, coal.

Animals.—The kangaroo, duck-bill, wombat, apteryx, lyre bird. Immense herds of sheep and cattle graze over the vast plains.

Manufactures.—Not developed to any great extent.



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